1974

World Population Year

THE POPULATION OF POLAND

C.I.C.R.E.D. Series

1974 WORLD POPULATION YEAR

THE POPULATION OF POLAND

POLISH ACADEMY OF SCIENCES
COMMITTEE FOR DEMOGRAPHIC STUDIES

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FOREWORD

The monograph on Poland's population growth which we are presenting to the readers has been prepared by Polish demographers at the request of CICRED which, in connection with 1974 World Population Year, assumed the responsibility for the coordination of national demographic monographs. The purpose of the monographs is to contribute to the popularization of the knowledge of population problems of our globe.

This work is a collective effort under the auspices of the Committee for Demographic Studies of the Polish Academy of Sciences and the authors of the particular chapters are members of this Committee.

Included in this work is synthetic information on the present state and development of Poland's population, especially in the 1950–1970 period together with an extensive historical background and population projections.

Abundant official statistical information based on Polish population censuses and current records of population movements were used in this work. Use was made also of: registry offices, minor questionnaire surveys conducted by Główny Urząd Statystyczny (Central Statistical Office), by schools of higher learning, institutes and even by individual researchers. All statistics have been compiled according to the old three level administrative division of the country, in force up to 31st of May 1975. A new two-level administrative division, binding since 1st of June 1975, has been presented in a special sliding administrative map which will help the reader to get some idea about changes in the areas of the voivodships.

The Committee for Demographic Studies of the Polish Academy of Sciences expresses its satisfaction with the opportunity of publishing this monograph and thus making its contribution, together with other countries to the joint cognitive effort to enhance the knowledge of population problems in connection with the World Population Year.

Chapter I

POPULATION GROWTH IN THE POLISH TERRITORIES

There is a very great variety of information sources on the population of the Polish territories. Polish historians, geographers and anthropologists, such as: J. Czekanowski, J. Kostrzewski, L. Krzywicki, H. Łowmiański and E. Vielrose estimated the population from the 10th century to the beginning of the 14th on the basis of the known settlement network and the level of the economy at that time. Around 1340, a once-over tax for the Pope in Rome was levied in Poland via the Church hierarchy. The data on this tax, called the Peter-penny, provide the first document concerning the total population of the Polish territories. Studies into this source and estimates of population before World War II were made by T. Ładogórski; discussion on the results lasted for over 40 years. Later population estimates were made by: A. Powiński, T. Korzon, I. Kleczyński, H. Wierciński, S. Hoszowski, I. Gieysztorowa, A. Szczypiorski and E. Vielrose on the basis of the land tax, individual taxes and the real estate tax. The Crown Treasury Commission, acting within the framework of economic and political reform towards the end of the 18th century, conducted a census covering the burghers and peasants; the results of this census were described by F.J. Moszyński.

Population censuses with a broad demographic and socio-economic programme were held in 1808 and 1810 in the Duchy of Warsaw, but their results were described and published after World War I.

In the occupied Polish territories Austria and Prussia conducted towards the end of 18th, in the 19th and at the beginning of the 20th century, about a dozen general population censuses in varying degrees of detail. In the territories occupied by Russia a modern-type population census was held in 1897; an evaluation of this census was made by S. Szulc.

The Central Statistical Office held two general population censuses between the two world wars, in 1921 and 1931. The results were published in two extensive series entitled: *Statystyka Polski (Poland's Statistics).* Since World War II four population censuses have been held: in 1946, 1950, 1960 and 1970. Each of them, especially the ones in 1960 and 1970, has heen published in several series.

Depending upon the territory covered by the study and the scope and nature of the sources, the populations history of the Polish territories may be divided into four long periods.

The first of them lasted from the 10th to the end of the 18th century. Original

information and estimates concern mainly three regions: Wielkopolska, Małopolska, and Mazowsze. The data in the census held by the Crown Treasury Commission in 1791 have a wider territorial reach; moreover, they can be compared with the results of chronologically coinciding censuses in Austria and Prussia conducted in the territories annexed during the first Partition of Poland.

The second period lasted from the last decade of the 18th century to the outbreak of World War I. Information is originating from population censuses of the Duchy of Warsaw and of the Polish territories occupied by Prussia and Austria, as well as Russia, but only within the boundaries of the Polish Kingdom as created in 1815.

The third period covers the 20 years between the two world wars. Two population censuses cover the whole area of inter-war Poland.

Finally, the fourth period covers the years from World War II to the present time, and the source data pertain to the entire area of People's Polish Republic.

Let us consider the population growth in the particular periods.

During the first eight centuries of the present millennium the population of the Polish territories for which the data are more readily available, covering approximately the area of 146 thousand square kilometers, increased from about 0.690 million to 4 milion (Table 1). This area coincided approximately with three regions of Poland: Wielkopolska, Małopolska and Mazowsze. In wars of a long duration population losses were serious; for instance, in the years 1650–1660 they numbered 25 per cent of the total population, and in the first two decades of the 18th century amounted to about 12 per cent of the population as it had been at the turn of the century.

However, the annual rate of population growth was gradually rising. While in the first centuries of this millennium this rate amounted probably to about 0.2 percent, for the years 1720–1790 it is estimated at 0,5 per cent.

In these three regions of Poland population density doubled between the 10th century and the middle of the 14th; during the next five centuries it increased more than threefold. It can be seen from Chart 1.1 that around 1340 the most densely populated region was the southern area, Małopolska and Silesia, where density amounted to between 10 and 30 persons per square kilometer. In the West and in the North, in Wielkopolska, Pomerania and Mazowsze, the population density fluctuated between 6 and 20 persons per kilometer. Finally, to the East of the middle part of the Vistula river there were 1 to 6 persons per square kilometer.

Around 1790 the differences in population density, which was over three times as high were analogous, (Chart 1.2). In Małopolska and in Silesia, according to the findings of historians, the density was the highest, amounting to between 30 and over 70 persons per square kilometer. In Wielkopolska,in Pomerania and the north western part of the Mazowsze there were between 20 and 50 persons per one square kilometer. In the northern and eastern territories the population did not exceed 20 persons per kilometer.

In the territory of the Duchy of Warsaw, established during the Napoleonic

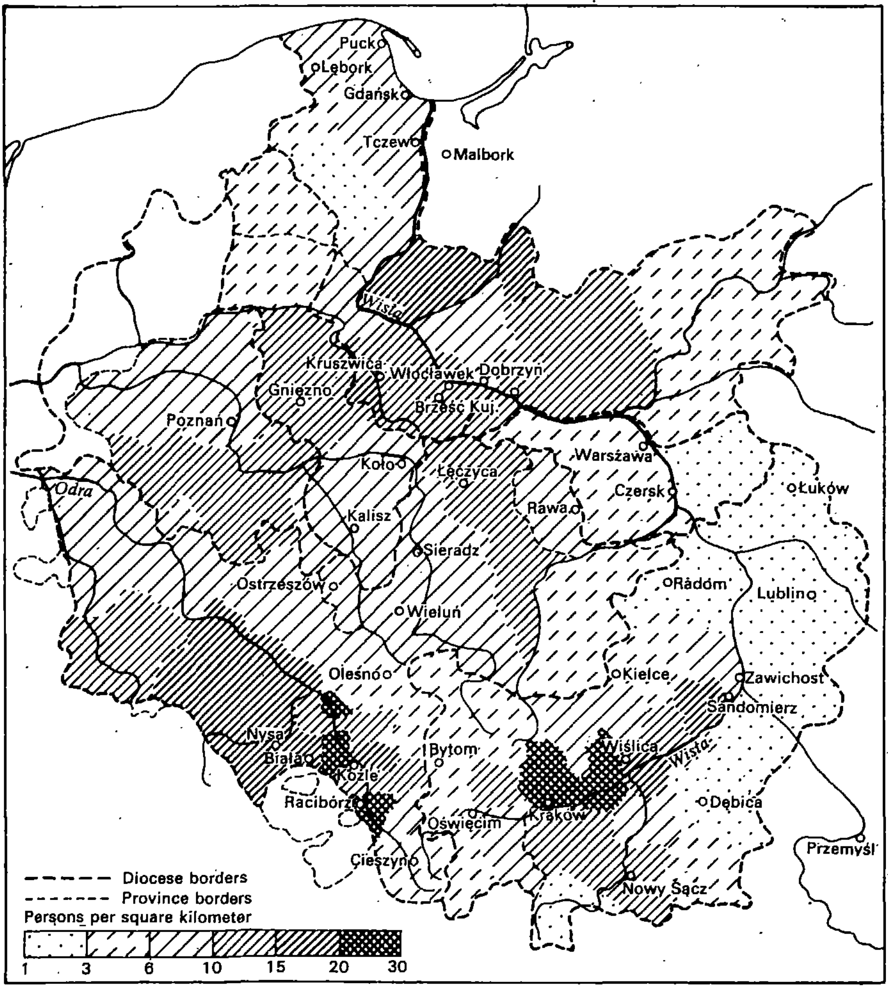


Chart. 1.1. Population density in the Polish territories around the year 1340

wars, there were 4,334 thousand inhabitants, according to the census of 1810. In Wielkopolska the population density averaged about 29 persons per square kilometer, fluctuating in the particular counties from 20 to 46 persons per square kilometer.

During the 19th century the population of the territories taken away from Poland by Austria and Prussia and of the Polish Kingdom itself more than doubled, amounting to 10 million around the middle of the century.

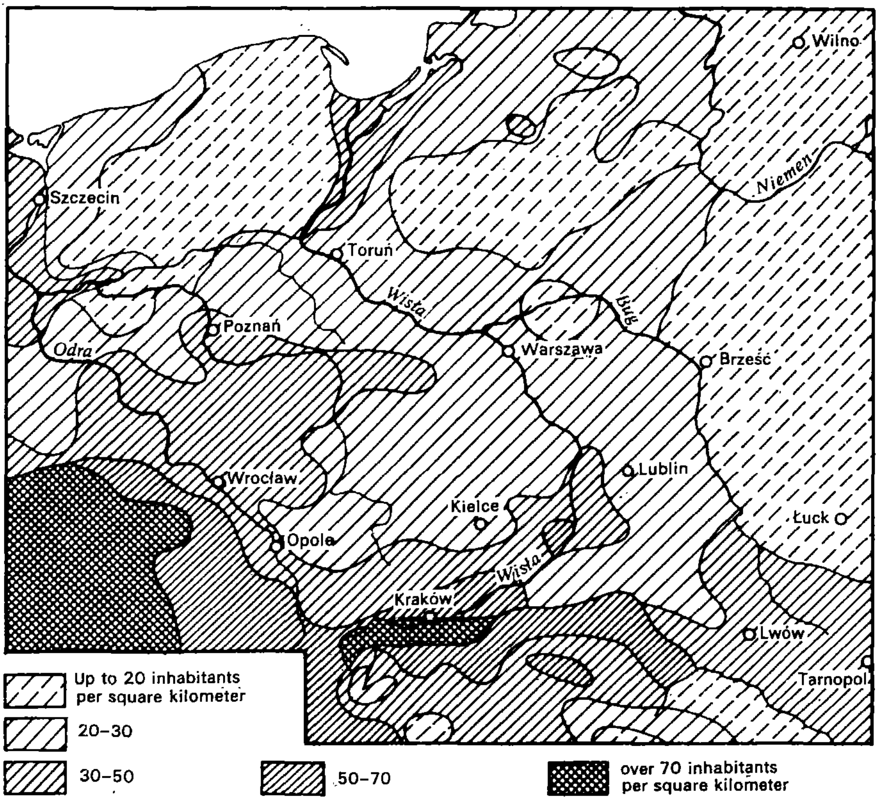


Chart. 1.2. Population density in the Polish territories around the year 1790

During the quarter century from 1790–1816 the annual rate of population growth amounted to 0,3 per cent, and from then on up to 1850 it rose to 1.2 per cent; in the second half of the 19th century it rose further to 1.7 per cent. The population density increased from 28 persons per square kilometer at the turn of the 18th and the 19th centuries to 65 persons at the turn of the 19th and 20th.

An important factor in the population growth was its natural increase. In the 1870–1914 period, when, first, the mortality level, and about a dozen years later the fertility level began to decline, a demographic revolution took place in a major portion of the Polish territories (Chart 1.3). A considerable part of the natural increase, tremendous for that time, was absorbed by emigration to western Europe, America and Australia. External factors affecting numerical population growth were progressive industrialization and urbanization. In the 19th century about one fifth of the total population lived in towns. In Silesia the percentage of urban

TABLE 1.1. POPULATION GROWTH, POPULATION DENSITY AND URBANIZATION IN THE POLISH TERRITORIES

Year	Population		Percentage of urban population	Years	Population increase in percentages	
	Total in millions	Per square km.			Total	Per annum
	I Area 146.0 thousand per square kilometers					
1000	0.690	4.8	.	1000–1340	81	0.2
1340	1.250	8.6	.	1340–1580	148	0.4
1590	3.100	21.3	.	1580–1650	23	0.3
1650	3.830	26.3	.	1650–1660	25	–
1660	2.900	19.9	.	1660–1700	12	0.3
1700	3.250	22.3	.	1700–1720	12	–
1720	2.860	19.6	.	1720–1790	40	0.5
1790	4.000	27.5	.			
	II Area 230.8 thousand square kilometers					
1816	7.254	31.4	18.7	1790–1816	38	0.3
1850	10.720	46.5	19.2	1816–1850	48	1.2
	III Area 389.7 thousand square kilometers					
1900	25.106	65.0	19.6	1850–1900	134	1.7
1921	27.177	70.0	24.6	1900–1921	8	1.6
1931	32.107	83.0	27.4	1921–1931	18	1.7
1938	34.849	89.7	30.0	1931–1938	8	1.2
	IV Area 311.7 thousand square kilometers					
1946	23.930	77.0	31.8	1938–1946	31	–
1950	25.008	80.0	39.0	1946–1950	4	1.9
1960	29.776	95.0	48.3	1950–1960	19	1.5
1970	32.589	104.0	52.2	1960–1970	9	0.9
1973	33.512	107.0	54.2	1970–1973	3	0.9

population was twice as high, and in Wielkopolska, one third of the total population already lived in towns by 1900.

We must consider population growth in the third period with reference to the area occupied by Poland in the interwar years. In a territory of 390 thousands square kilometers there were 25 million people by 1900, and almost 35 milion in 1938. Up to 1931 the annual rate of population growth amounted to almost 1.7 per cent, and in the 1930's it dropped to 1.2 per cent.

In 1900–1938 population density increased from 65 persons to 90 persons per square kilometer. It can be seen from Chart 1.4 that population density gradually decreases from the South and South West, to the North and South East. In 1931 in

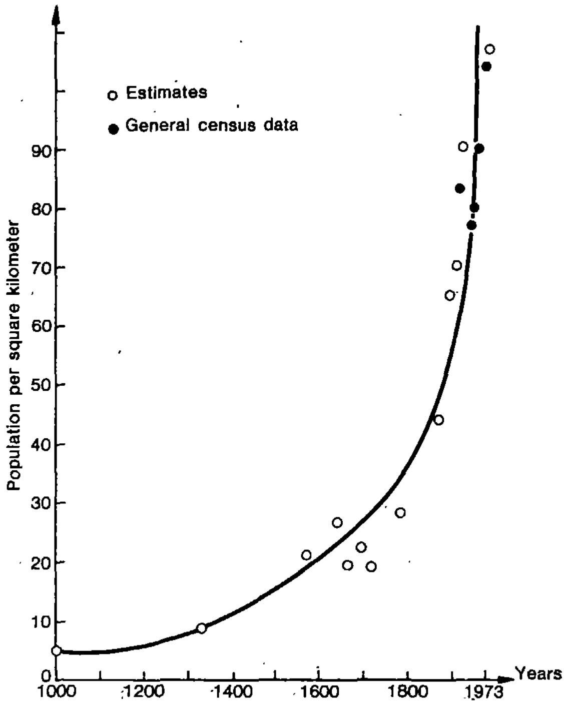


Chart. 1.3. The dynamics of population density in the Polish territories in the years 1000–1973

Silesia, the most densely populated area, there were 299 persons per square kilometer, and in Polesie, in Eastern Poland, the most sparsely populated area, there were 31 persons per kilometer.

In 1900–1938 the urban population rose from 20 per cent to 30 per cent, and by 1931 there were 10 cities numbering more than 100,000 inhabitants, including two cities with over 500,000 and one city with over one million.

In 1939–1945, in consequence of Nazi aggression, changes in the boundaries of the country and for other reasons, Poland lost about one third of her total population in 1938. During the 30 years of existence of the Polish People's Republic the population has risen again to 34 million (Table 1.1). Immediately after World War II the annual rate of population growth was 1.9 per cent, and during the decade from 1950 to 1960 it amounted to 1.5 per cent; since that time up to the present moment the rate of growth has been 0.9 per cent.

The population density in the 1945–1974 period increased from 77 persons per square kilometere to 107, decreasing from the South and South West to the North and North West (Table 1.2 and Chart 1.5). The most densely populated Katowice

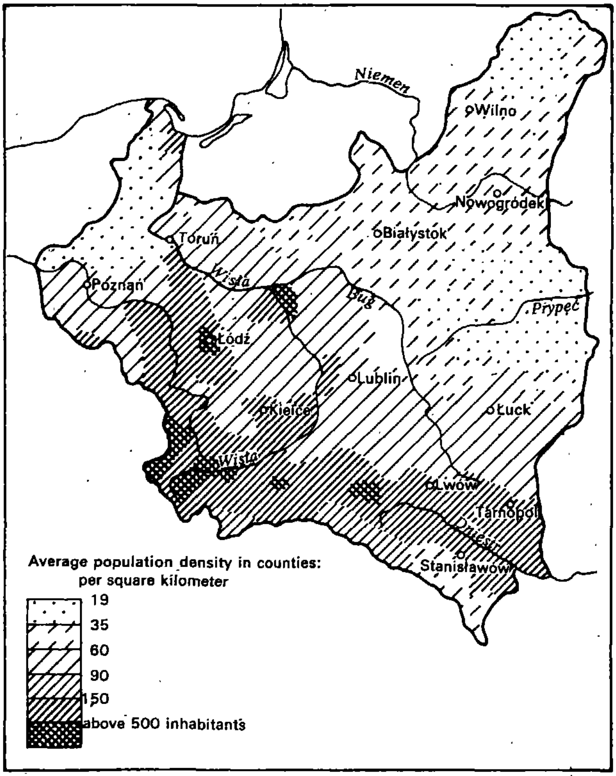


Chart. 1.4. Population density in the Polish territories in 1931

voivodship in Silesia, had 404 persons per square kilometer towards the end of 1973, and in the most sparsely populated, Koszalin voivodship, there were 46 persons per square kilometer.

During the same 30 years the proportion of the urban population rose from 31 per cent to 54 per cent. At the beginning of 1974 there were 25 cities in Poland with over 100,000 inhabitants, among them five with over 1/2 a million including the capital city of Warsaw with its 1,388 thousand inhabitants.

For the country as a whole the demographic factor which determines population growth is natural population increase; external migration movements do not play an essential role. Regional differentiation of population is determined both by population increase and by internal migration. Among the external factors of population growth in the regions, resulting mainly from migration, is the rapid rate of industrialization of the country with its resultant urbanization.

An unprecedented phenomenon in the sphere of European population are the western and northern voivodships regained after World War II.

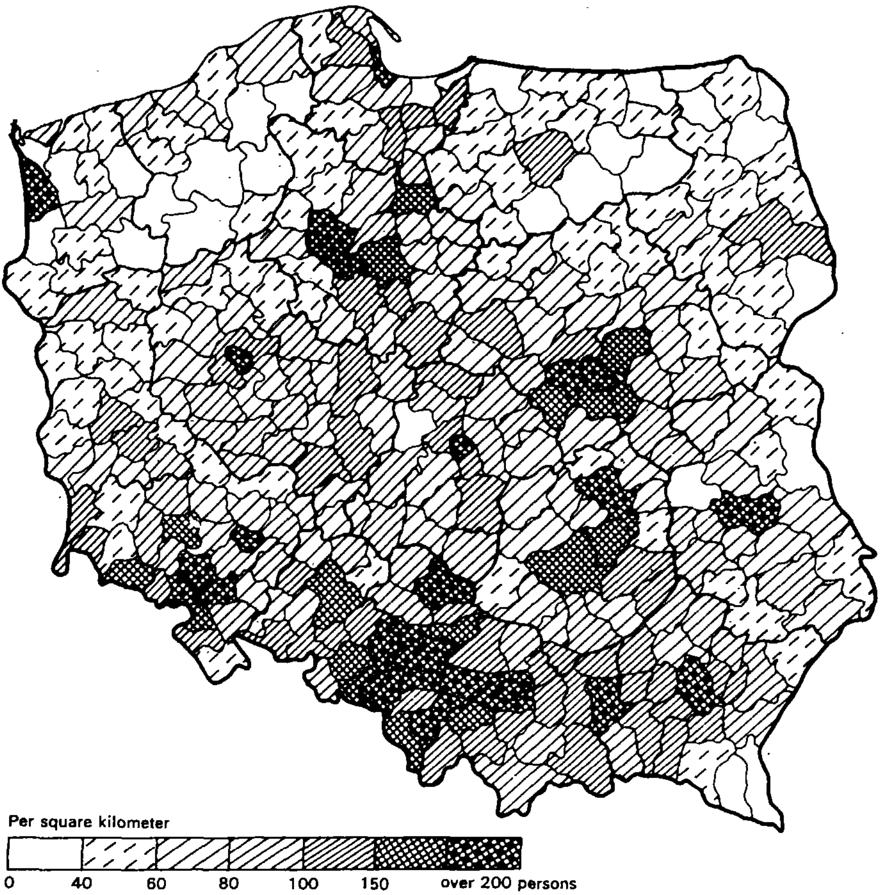


Chart. 1.5. Population density by counties in 1970

They had largely been abandoned by the German population towards the end of the war, and some Germans were resettled westward in the first years afterwards, in accordance with the Potsdam agreement of 2 August 1945.

In the ninth month after the end of World War II a summary population census was taken throughout the whole country. with nationality taken into consideration. The comparative result of this census are given in Table 1.3.

Among the 5 million inhabitants in the Regained Territories at the beginning of 1946 there were approximately two million Germans. one million native Poles, two million newly settled Poles from the Old Polish Territories and repatriants from the East and from the West.

TABLE 1.2. POPULATION BY VOIVODSHIPS

Voivodship	1950		1960		1970	
	Population density	Percentage of urban population	Population density	Percentage of urban population	Population density	Percentage of urban population
Poland	80	39.0	95	48.3	104	52.2
Capital City of Warsaw	1,836	100.0	2,553	100.0	2,936	100.0
City of Kraków	1,491	100.0	2,093	100.0	2,542	100.0
City of Łódź	2,972	100.0	3,344	100.0	3,556	100.0
City of Poznań	1,459	100.0	1,859	100.0	2,139	100.0
City of Wrocław	1,373	100.0	1,916	100.0	2,291	100.0
Białystok	42	22.4	48	30.2	51	37.1
Bydgoszcz	71	42.5	83	48.2	92	50.6
Gdańsk	86	58.0	111	66.4	133	69.5
Katowice	287	63.2	345	75.3	387	76.7
Kielce	85	18.3	94	27.3	97	32.5
Koszalin	29	34.1	39	44.8	44	49.5
Kraków	115	17.6	130	27.7	142	30.3
Lublin	66	17.7	73	25.1	77	30.8
Łódź	86	26.5	94	31.7	98	35.7
Olsztyn	33	29.3	42	36.3	46	41.0
Opole	87	27.3	98	38.4	111	42.6
Poznań	67	30.5	75	36.3	82	39.6
Rzeszów	74	17.1	86	24.2	94	27.5
Szczecin	43	55.9	60	62.2	70	66.6
Warszawa	71	20.6	79	31.4	85	35.5
Wrocław	74	38.4	96	51.9	104	55.6
Zielona Góra	39	37.1	54	48.2	61	54.2

TABLE 1.3. THE POPULATION OF POLAND'S POSTWAR TERRITORY IN 1939 AND 1946 (IN THOUSANDS)

Territory	Estimate for 1939	According to census of 14 February 1946
Total	31,810	23,930
Poland's old territories	23,000	18,908
Territories Regained after World War II	0,810	5,022

From that time the total population rose rapidly, together with the proportion of the Polish population. The Germans who had left were replaced by Poles coming from the country and from abroad.

It can be seen from Table 1.4 that in the years 1946–1973 the population of

TABLE 1.4. THE POPULATION OF WESTERN AND NORTHERN VOIVODSHIPS

Particulars	1939	1946	1950	1960	1970	1973	1939 = 100
	in thousands						
Total population	8,810.2	5,022.2	5,894.6	7,655.9	8,671.2	9,878.4	112.1
of which in towns	4,195.1	1,956.6	2,802.8	4,315.8	5,226.4	5,531.4	131.9
percentage of the total	47.6	39.0	47.5	56.4	60.3	56.0	x

the Regained Territories almost doubled. In comparison with the level in 1939 this amounted to 112.1 per cent towards the end of 1973.

Today the Opole and Wrocław voivodships in the South West and the Gdańsk voivodship in the North are among the most densely populated in the country, with between 107 and 139 inhabitants per square kilometer. In the remaining voivodships in the West and North there are 46 to 74 persons per square kilometer.

In the western and northern voivodships which belonged to Germany before World War II, the urbanization process was rapid since the time they were regained by Poland. In comparison with 1939 the urban population has risen by close to 32 per cent. The percentage of the rural population in western and northern voivodships is higher than that for the whole country (Table 1.4).

Over the thirty years that have passed since the time when these territories were returned to Poland, their society has become integrated both internally and with the society of the whole country. The peculiar features of society in the western and northern voivodships are still its youth, spacial mobility and high level of economic activity both for men and women.

Throughout its entire millennium Polish society has experienced numerous natural calamities and wars. For instance, after World War II only two thirds of its population level in 1939 remained. In spite of this it has risen from the ruins of numerous national calamities owing to its great demographic vitality. In the present century Poland occupies the sixth place in Europe with respect to population level, only slightly below Spain, which is fifth.

Chapter II

NATURAL POPULATION MOVEMENT, POPULATION REPRODUCTION AND THE FAMILY

In the Polish society over 95 per cent of births are within marriage. The duration of marriage, the age at marriage and the ageing of married couples are important factors in changes in marital fertility.

Information on the frequency of marriage in the past can be obtained in Poland from the Public Registers, which from the last quarter of the 16th century to the 1870's were kept in Roman Catholic, Greek Catholic and Protestant parishes and Jewish communities. In the last quarter of the 19th century lay documentation was set up in addition to church registers. Since the turn of the 18th and 19th centuries official statistics on births, deaths and marriages published currently and in retrospect, have been developing and improving with time.

Overlong period the marriage rate became stabilized at an ever lower level (Table 2.1). Immediately after wars the number of marriages per one thousand inhabitants oscillated around 12. Later, marriage rates displayed either a declining trend, or — as was the case after World War II — first a declining trend over a period of about 20 years, and then a growing trend. This cycle is a repercussion of the post-war increase in births; for towards the end of the cycle those born after the war were already beginning to get married.

Marriage rates in cities are generally higher than in villages, because marriages are more frequent in the younger age groups, which are more numerous in cities than in villages, in consequence of rural urban migration.

In this connection there are also considerable differences in the marriage rates between particular towns. The greater migration inflow to a given town, the higher the level of marriage rate. These differences can be noted easily by comparing the rates for cities with half a million or more inhabitants. With respect to migration inflow, first place is occupied by Wrocław and the second by Warsaw. Similarly, in regard to the marriage rate the leading city is Wrocław, followed by Warsaw (Table 2.2 and Chart 2.1 and 2.2).

The age at marriage keeps declining (Table 2.3). In 1950–1973 the age at marriage for men dropped from 26 years to 24.1 years, and for women from 23 to 21.8 years. The level would be much lower if we confined our study to first marriages. The number of men aged 19 years or less who get married became

TABLE 2.1. NATURAL MOVEMENTS IN THE POLISH TERRITORIES
(MARRIAGES, BIRTHS, DEATHS PER 1,000 INHABITANTS)

Partitioned Poland with in the Borders of 1921				Interwar Poland				People's Poland			
Years	Marriages	Births	Deaths	Years	Marriages	Births	Deaths	Years	Marriages	Births	Deaths
1808[a]	13.8	58.4	52.0	1919	12.7	30.5	26.9	1946	11.9	26.2	10.2
1810[a]	10.6	49.5	37.3	1920	10.6	31.2	27.0	1947	13.0	28.7	10.9
1816–1830[b]	8.4	47.3	31.9	1921	11.7	32.8	20.9	1948	13.3	29.4	11.2
1831–1850[b]	8.4	43.5	33.7	1922	11.5	35.3	19.9	1949	11.2	29.7	11.5
1851–1870[c]	8.2	43.7	34.6	1923	10.0	35.6	17.3	1950	10.8	30.7	11.6
1871–1890	8.2	42.3	30.7	1924	9.3	34.5		1951	10.7	31.0	12.4
1891–1894	8.2	42.6	30.1	1925	8.1	35.2	16.7	1952	10.4	30.2	11.1
1895	8.3	44.6	27.5	1926	8.6	33.1	17.8	1953	10.0	29.7	10.2
1896	8.1	44.2	25.7	1927	8.5	31.6	17.3	1954	9.8	29.1	10.3
1897	8.1	43.5	25.5	1928	9.6	32.3	16.4	1955	9.5	29.1	9.6
1898	7.7	42.6	25.1	1929	9.6	32.0	16.7	1956	9.4	28.1	9.0
1899	8.4	43.9	26.0	1930	9.4	32.5	15.5	1957	9.1	27.6	9.5
1900	8.2	44.0	25.5	1931	8.5	30.2	15.5	1958	9.2	26.3	8.4
1901	8.0	43.2	24.9	1932	8.4	29.1	15.1	1959	9.5	24.7	8.6
1902	7.6	43.2	24.9	1933	8.4	26.6	14.2	1960	8.2	22.6	7.6
1903	7.7	41.8	25.0	1934	8.4	26.7	14.5	1961	7.9	20.9	7.6
1904	7.3	41.8	25.2	1935	8.4	26.2	14.1	1962	7.5	19.8	7.9
1905	7.3	41.1	25.6	1936	8.4	26.4	14.3	1963	7.2	19.2	7.5
1906	8.0	40.9	23.4	1937	8.1	25.0	14.1	1964	7.4	18.1	7.6
1907	7.6	40.4	22.7	1938	8.1	24.6	13.9	1965	6.3	17.4	7.4
1908	7.3	39.5	22.5					1966	7.1	16.7	7.3
1909	7.3	39.7	23.0					1967	7.5	16.3	7.8
1910	7.3	38.5	22.3					1968	8.0	16.2	7.6
1911	7.4	37.8	21.7					1969	8.3	16.3	8.1
1912	7.0	37.8	21.1					1970	8.5	16.6	8.1
1913	6.5	35.4	21.1					1971	8.9	17.2	8.7
								1972	9.3	17.4	8.0
								1973	9.4	17.9	8.3
								1974	—	17.5	8.6

[a]The Duchy of Warsaw. [b]The Grand Duchy of Poznań. [c]From 1851 to 1938 within the borders of 1921.

TABLE 2.2. MARRIAGE RATES IN THE URBAN AND RURAL AREAS (MARRIAGES PER 1,000 INHABITANTS)

Years	Towns	Villages	City of Warsaw	City of Kraków	City of Wrocław
1946	13.8	10.9	.		.
1947	14.8	12.1	.	.	.
1948	14.8	12.5	16.7	13.7	25.0
1949	13.2	10.1	14.8	12.4	22.7
1950	12.6	9.7	14.4	12.8	20.7
1951	12.3	9.7	15.5	13.4	17.7
1952	11.5	9.6	14.0	12.7	16.8
1953	11.4	9.0	14.3	12.6	15.1
1954	11.2	8.9	14.7	12.0	15.6
1955	10.8	8.4	12.9	12.3	14.2
1956	10.2	8.7	11.6	11.6	13.8
1957	9.9	8.4	10.9	10.4	12.6
1958	9.7	8.7	9.9	10.2	11.8
1959	9.4	9.5	9.4	10.1	11.8
1960	8.8	7.7	8.6	9.3	10.7
1961	8.5	7.3	8.1	8.5	10.8
1962	7.9	7.2	7.5	7.3	10.1
1963	7.5	6.8	7.4	6.8	9.7
1964	7.6	7.2	7.4	6.5	9.7
1965	6.6	6.1	6.2	5.7	8.3
1966	7.3	7.0	6.7	6.2	9.0
1967	7.6	7.3	7.1	6.3	9.0
1968	8.0	7.9	7.6	6.6	9.0
1969	8.3	8.3	8.0	6.7	9.4
1970	8.7	8.4	8.5	7.2	9.8
1971	8.9	8.9	8.7	7.4	10.2
1972	9.3	9.3	9.1	7.7	10.7
1973	9.3	9.6	9.2	7.9	10.9

stabilized at 5 per 1000 persons; the number of newly-weds in the 20–24 age group kept growing and reached 110 per 1.000 in 1933. The share of the remaining age groups in marriage movements is declining steadily. Women aged less than 20 and between 20 and 24 years are getting married more and more frequently, while the frequency in the higher age groups is declining. The age at which women get married in the rural areas is much lower than in the urban areas, and is declining steadily.

The permanence of marriage is being threatened more and more by divorce (Table 2.5). The divorce rate, measured by number per 1,000 new marriages and per 1,000 inhabitants in the years 1950–1973 increased three-fold. There are considerable differences in the divorce rates between town and village. In the towns it is about four times as high.

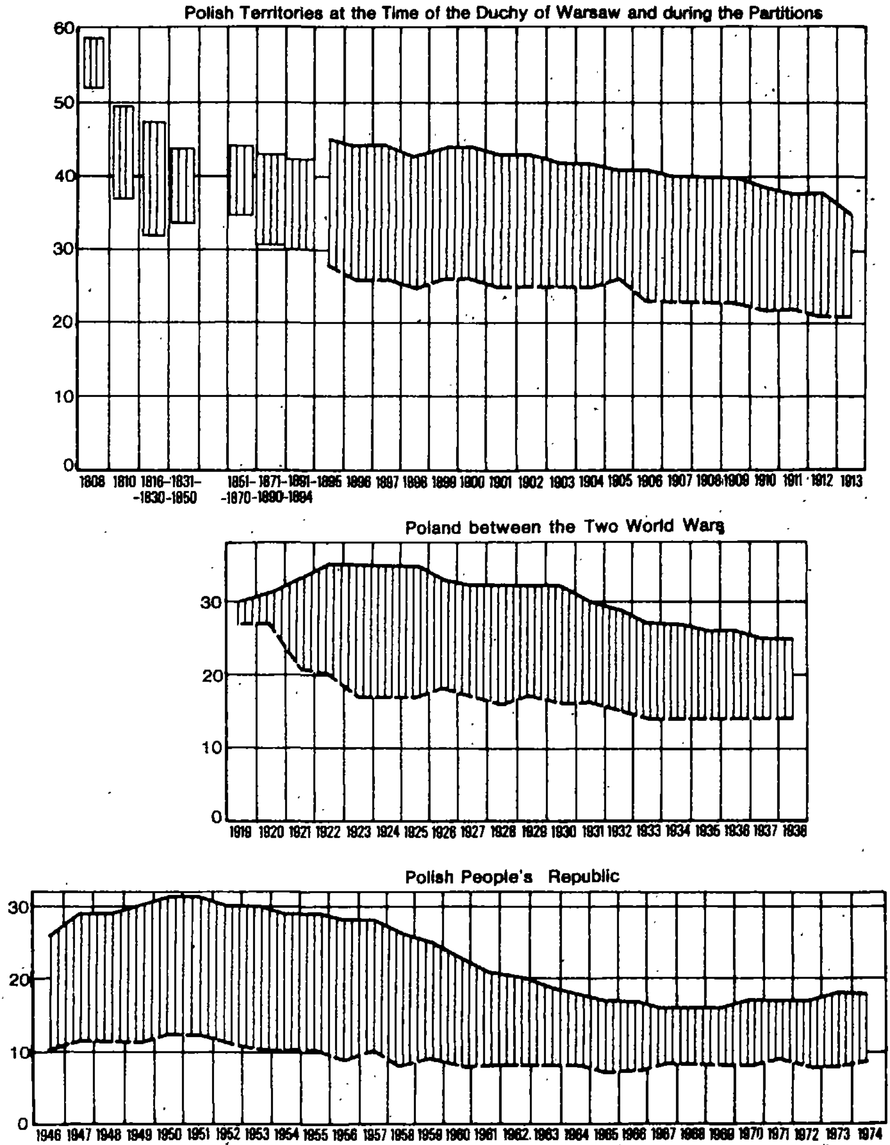

Polish Territories at the Time of the Duchy of Warsaw and during the Partitions
0 10 20 30 40 50 60
1808 1810 1816–1830 1831–1850 1851–1870 1871–1890 1891–1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913
Poland between the Two World Wars
0 10 20 30
1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938
Polish People's Republic
0 10 20 30
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Chart. 2.1.

TABLE 2.3. AGE AT MARRIAGE

Sex and calendar years	Marriage at age							Medial age
	19 and less	20–24	25–29	30–34	35–39	40–49	50 and over	
	per 1,000 inhabitants of each sex and age group							
Men								
1931/1932	6.9	58.1	70.6	26.8	13.2	9.5	3.7	26.3
1950	8.4	83.9	89.8	43.0	21.9	10.7	4.8	26.0
1955	11.4	87.9	79.2	24.6	12.7	7.0	3.9	25.4
1960	10.4	90.1	68.1	21.2	9.7	5.8	4.0	25.4
1965	2.1	84.0	61.2	17.6	7.8	4.6	3.5	25.7
1970	5.0	109.1	62.9	19.4	8.2	4.7	3.6	24.1
1973	5.0	109.3	63.9	18.4	8.9	4.8	3.5	24.1
Women								
1931/1932	34.8	70.2	37.7	16.6	8.9	3.9	1.1	23.4
1950	44.9	99.2	48.6	21.1	11.8	5.3	1.1	23.0
1955	54.2	99.8	36.9	15.4	8.2	4.2	1.1	22.5
1960	63.5	97.8	31.2	12.8	7.5	4.6	1.4	22.3
1965	39.9	88.8	24.6	9.4	5.8	4.1	1.5	22.0
1970	43.1	106.0	25.0	8.7	5.4	3.8	1.7	21.6
1973	42.0	110.2	29.7	9.1	5.3	3.6	1.7	21.8

TABLE 2.4. THE PROBABILITY OF GETTING MARRIED AT AGE X ACCORDING TO THE POLISH MARRIAGE TABLE 1970–1971

Women				Men			
Age x	Probability n_x	Age x	Probability n_x	Age x	Probability n_x	Age x	Probability n_x
16	0.0051	26	0.0849	18	0.0057	27	0.0714
17	0.0163	27	0.0570	19	0.0173	28	0.0599
18	0.0795	28	0.0471	20	0.0307	29	0.0464
19	0.1202	29	0.0375	21	0.1136	30	0.0399
20	0.1751	30	0.0318	22	0.1458	35	0.0162
21	0.2003	35	0.0226	23	0.1735	40	0.0065
22	0.2018	40	0.0180	24	0.1714	45	0.0022
23	0.1828	45	0.0161	25	0.1465	50	0.0013
24	0.1525			26	0.1046		
25	0.1221						

TABLE 2.5. DIVORCES

Years	Total	Towns	Villages	Total	Towns	Villages
	per 1,000 marriages			per 1,000 inhabitants[a]		
1950	41.2	75.1	16.0	0.73	1.47	0.26
1955	51.4	85.3	17.9	0.81	1.46	0.26
1960	60.7	99.9	19.9	0.84	1.41	0.27
1961	71.2	113.2	25.1	0.94	1.55	0.32
1962	78.9	129.7	25.0	0.99	1.65	0.31
1963	88.9	144.4	29.2	1.07	1.75	0.35
1964	90.5	148.2	30.6	1.12	1.81	0.39
1965	117.8	193.0	38.0	1.25	2.03	0.41
1966	107.9	179.1	33.9	1.28	2.06	0.42
1967	113.5	186.6	35.8	1.40	2.23	0.45
1968	114.0	189.2	34.4	1.49	2.38	0.46
1969	121.9	201.1	37.3	1.63	2.60	0.52
1970	123.3	201.7	36.9	1.68	2.66	0.52
1971	124.5	200.9	39.7	1.75	2.73	0.58
1972	121.6	193.9	39.7	1.77	2.72	0.60
1973	126.2	197.4	44.2	1.84	2.73	0.69

[a]At the age of 20 years and over.

Note: Since 1960 the divorces in which the plaintiff is a person residing abroad have not been taken into account in the division into urban and rural areas (64 divorces in 1973).

TABLE 2.6. PERCENTAGE OF MARRIED PERSONS IN 1970

Generations from the years	Urban and rural areas		Urban areas		Rural areas	
	Men	Women	Men	Women	Men	Women
1955–1951	0.4	4.5	0.4	3.7	0.4	5.6
1950–1946	24.0	52.4	25.5	49.3	22.3	56.6
1945–1941	71.1	83.0	73.1	81.0	68.3	86.1
1940–1936	84.7	88.3	85.8	86.5	83.2	90.9
1935–1931	90.0	88.0	90.3	86.1	89.6	90.6
1930–1926	92.2	85.5	92.0	82.9	92.5	88.7
1925–1921	93.1	81.3	92.7	78.0	93.6	85.1
1920–1916	93.2	75.1	92.6	71.1	83.8	79.2
1915–1911	92.3	66.4	91.7	61.9	92.8	71.0
1910–1906	90.3	56.5	90.1	51.7	50.5	61.3
1906–1901	86.6	94.1	86.9	39.4	86.3	48.7
1900–1896	80.1	31.1	81.4	27.2	79.2	35.0

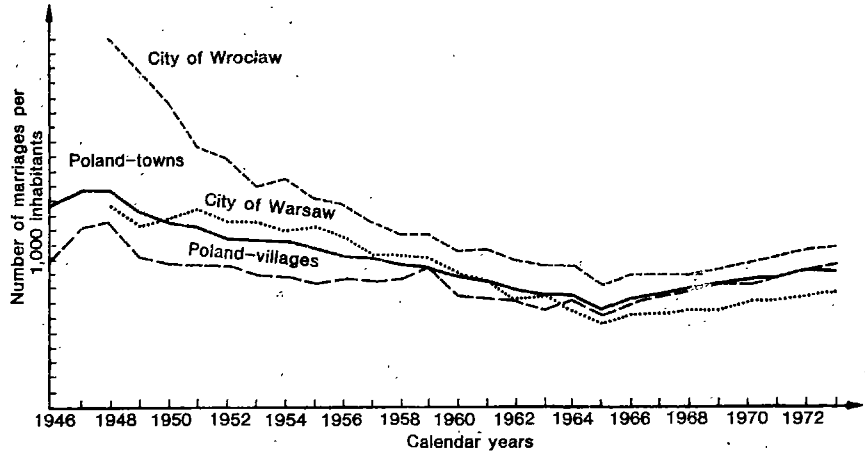


Chart. 2.2. Marriage rates

In consequence of differences in the marriage and divorce rates in town and in village, and differences in the death rate, the population structure by the percentage of married people is differentiated. The structure by generations is presented in Table 2.6. The percentages of married men belonging to generations 1931–1955 and 1896–1905 are higher in urban than in rural areas, and those belonging to the generation 1906–1930 are lower in towns than in villages. The percentages of married women of all generations are higher in rural than in urban areas (Table 2.6). This phenomenon accounts for one of the differences in fertility between women living in urban and rural areas.

The sources for the data on marriages, indicated at the beginning of this chapter, also contain information on births and deaths. With respect to births, three more sources have become available in the last decade. During the 1970 General Population Census a five per cent sample was taken of ever married women. The programme of study realized by the Central Statistical Office concerned the number of children per woman, according to demographic and social characteristics. In 1972 the General Statistical Office conducted a family questionnaire survey, and the sample included over 16,00 families. The programme was quite extensive and concerned a number of factors involved in marital fertility.

In 1966 the Economic Table 2.6 Statistics and Demography Centre at the Academy of Economics in Poznań embarked upon a study of marital fertility involving over 40,00 families throughout the whole country. Subsequently the number of families covered by the sample was increased: current information is obtained from these, families concerning changes which have taken place. The study being continued. Up to the turn of the 19th and 20th centuries the birth rate

was at a level of 40 promille. Up to the 70's the birth rate curve was sometimes intersected by the death rate curve. In the first decade of the 20th century the birth rates began to decline, and apart from a temporary increase after the two world wars the declining tendency has continued up to the present day. The negligible increase in the 70's is a repercussion of the compensation period after World War II (Table. 2.1 and charte 2.1).

Worth noting is a break in the birth trend in the first decade of this century. This phenomenon, typical of demographic revolution, and also known as a demographic transition period, is a manifestation of adaptation of fertility to the death rate trend, which has been declining since the last quarter of the 19th century. The decline in fertility was the result of birth control, which was becoming more and more widespread. The rates presented here are based on the total number of births. In this number, births out of wedlock amount to 4—5 per cent.

TABLE 2.7. FEMALE FERTILITY COEFFICIENTS

Years	Live births per 1,000 women aged:							
	15—49	15—19	20—24	25—29	30—34	35—39	40—44	45—49
	Total							
1900—1901[a]	180	34	208	315	308	226	121	33
1931—1932	110	25	145	189	164	118	53	10
1950	109	39	194	209	157	100	38	4
1955	110	42	208	203	144	89	32	3
1960	93	45	199	165	103	60	22	2
1965	72	32	184	144	84	43	15	2
1970	64	30	165	126	71	36	11	1
1973	68	28	169	136	71	35	11	1
	Urban areas							
1931—1932	70	16	91	125	104	68	27	4
1950	99	41	189	187	129	75	24	2
1955	101	46	198	183	117	67	22	2
1960	77	45	182	183	73	39	13	1
1965	57	29	148	112	59	26	8	1
1970	51	26	134	102	52	22	6	0
1973	54	23	129	110	54	22	6	0
	Rural areas							
1931—1932	128	28	169	218	191	142	65	13
1950	116	38	197	226	177	116	47	5
1955	118	39	213	222	169	109	42	5
1960	109	45	217	202	137	82	32	3
1965	88	34	231	186	115	64	22	3
1970	79	34	208	161	99	55	18	2
1973	87	34	235	180	99	54	17	1

[a]Galicia.

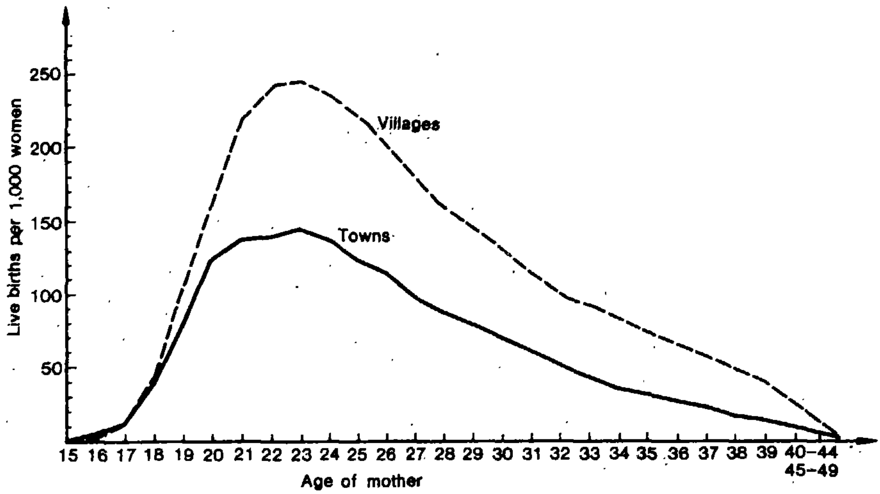


Chart. 2.3. Live births per 1.000 women in 1968

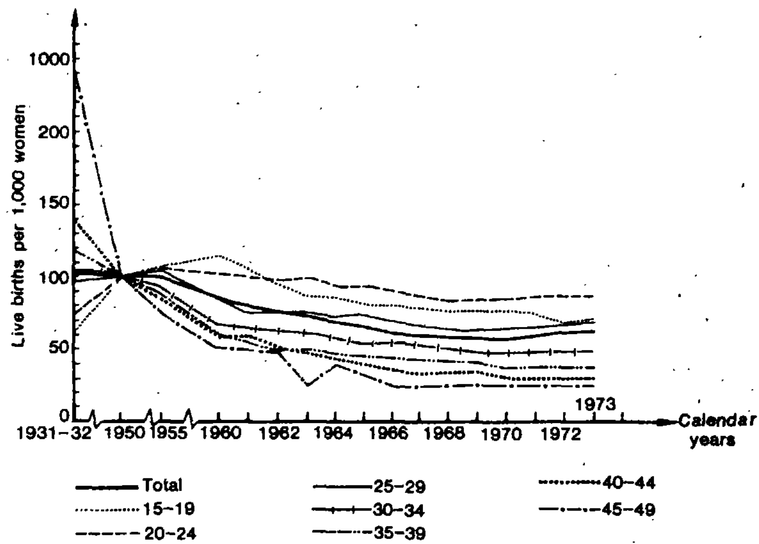


Chart. 2.4. Female fertility in Poland by age group (1950–100)

Let us see Chart. 2.3. the birth process more precisely, using female fertility rates, which express the number of live births per 100 women aged from 15 to 49 years

and the number of children born to women who survive the whole reproductive age (Tables 2.8 and 2.9).

TABLE 2.8. DIFFERENTIATION OF THE REPRODUCTION OF THE POPULATION IN THE YEARS 1950–1973

Years	Poland total	of which			Level in rural areas = 100	
		Urban areas-total	City of Warsaw	Rural areas	Level in urban areas	Level in Warsaw
	Fertility coefficients (live births per 100 women aged 15–49 years)					
1950	10.9	9.9	7.3	11.6	85.3	62.9
1955	11.0	10.1	8.1	11.8	85.6	68.6
1960	9.3	7.7	4.9	10.9	70.6	45.0
1965	7.2	5.7	3.5	8.8	64.8	39.8
1967	6.5	5.2	3.2	8.1	64.2	39.5
1970	6.4	5.1	3.5	7.9	64.6	44.3
1971	6.5	5.2	3.4	8.3	62.7	41.0
1972	6.6	5.3	3.4	8.3	63.9	41.0
1973	6.8	5.4	3.8	6.7	62.1	43.7
	Standardized fertility coefficients (the age structure in 1960 taken as a basis)					
1950	11.6	10.4	7.8	12.4	83.9	62.9
1955	11.1	10.0	8.0	12.1	82.6	66.1
1960	9.1	7.4	4.9	10.9	67.9	45.0
1965	7.7	5.5	3.8	9.7	56.7	39.2
1967	7.2	5.5	3.8	9.7	56.7	39.2
1970	6.9	5.3	4.0	9.0	58.9	44.4
1971	7.0	5.5	3.9	9.3	59.1	41.9
1972	7,0	5.4	3.9	9.3	58.1	41.9
1973	7.0	5.5	4.1	9.4	58.5	43.6
	Number of children per woman					
1950	3,705	3,235	2,505	4,030	80.3	62.2
1955	3,605	3,175	2,605	4,020	79.0	64.8
1960	2,980	2,450	1,610	3,590	68.2	44.8
1965	3,020	1,915	1,830	3,275	58.5	37.6
1967	2,323	1,770	1,200	3,095	57.2	38.8
1970	2,200	1,710	1,275	2,885	59.3	44.2
1971	2,250	1,745	1,240	2,980	58.6	41.6
1972	2,235	1,730	1,236	2,975	58.2	41.5
1973	2,255	1,720	1,282	3,100	55.5	41.4

Apart from the last two years, fertility rates have declined throughout the whole country. This process is faster in towns than in villages, and fastest in Warsaw. In order to eliminate differences in the age structure in towns and villages we have

TABLE 2.9. DIFFERENTIATION OF THE REPRODUCTION OF THE POPULATION IN THE YEARS 1950–1972

Years	Poland total	of which			Level in rural areas = 100	
		Urban areas total	City of Warsaw	Rural areas	Level in urban areas	Level in Warsaw
	Deaths of infants per 1,000 live births					
1950	111.2	102.6	79.3	116.0	88.4	68.4
1955	82.2	73.3	40.8	88.9	82.5	45.9
1960	54.8	49.7	27.9	58.9	84.4	47.4
1965	41.5	38.8	24.7	43.4	89.4	56.9
1967	37.9	35.7	25.3	39.5	90.4	64.1
1970	33.4	31.6	23.3	34.8	90.8	67.0
1971	29.7	29.0	26.1	30.3	95.7	86.1
1972	28.6	28.0	26.6	29.2	95.9	91.1
1973	26.1	25.7	24.2	26.3	97.7	92.0
	Gross reproduction coefficients					
1950	1,790	1,558	1,210	1,936	80.5	62.5
1955	1,742	1,546	1,258	1,941	79.6	64.8
1960	1,438	1,168	0,778	1,731	67.5	44.9
1965	1,217	0,925	0,594	1,582	58.5	37.5
1967	1,127	0,856	0,586	1,493	57.3	39.2
1970	1,064	0,832	0,617	1,389	59.9	44.4
1971	1,094	0,848	0,601	1,447	58.6	41.5
1972	1,082	0,842	0,603	1,439	58.5	41.9
1973	1,094	0,839	0,623	1,509	55.6	41.3
	Net reproduction coefficients					
1950	1,491	1,300	1,180	1,610	80.7	73.3
1955	1,519	1,366	1,228	1,675	81.6	73.3
1960	1,339	1,098	0,759	1,601	68.6	47.4
1965	1,149	0,879	0,580	1,487	59.1	39.0
1967	1,071	0,818	0,566	1,421	57.6	39.8
1970	1,040	0,810	0,585	1,370	59.1	42.7
1972	1,034	0,807	0,580	1,369	58.9	42.4
1973	1,055	0,805	0,599	1,449	55.6	41.3

computed standardized rates; but nevertheless the differences observed previously between villages and towns have been reduced only slightly. The changes in the number of children per family are extremely significant. While in the rural areas during 1950–1973 the number of children per woman declined from 4 to 3.1. and in towns from 3.2 to 1.7, in Warsaw the drop was from 2.5 to 1.2.

Let us take a look at the last two columns in Table 2.8 and Chart 2.6. The

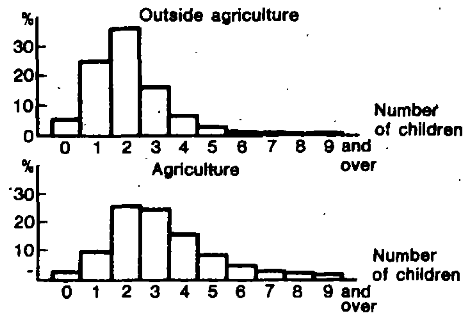


Chart. 2.5. Married women by the number of live births and sources of income. Married women under 50 years of age (18, 116mothers in the sample) surveyed in 1970 by the Central Statistical Office

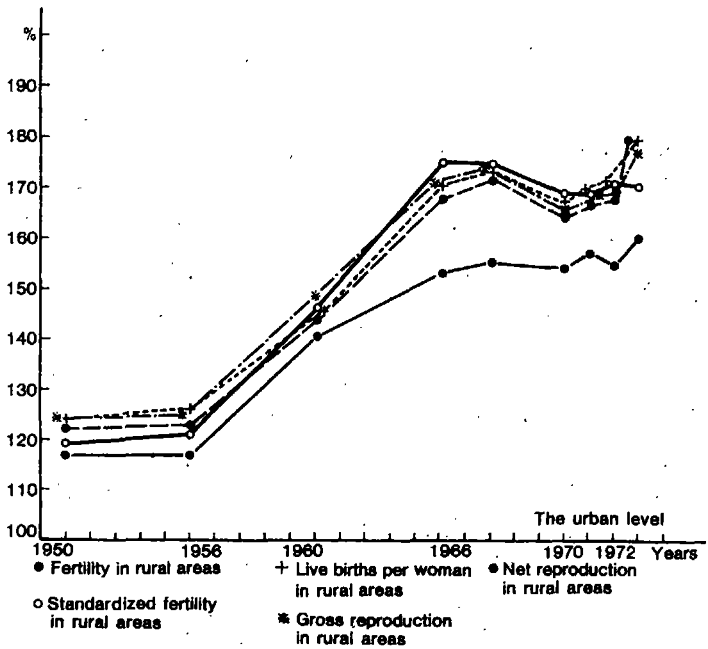


Chart. 2.6. Fertility in the rural areas

so-called "fertility scissors" are easily noticeable. Up to 1968 these scissors were opening more and more. From that moment on we notice either a slight closing of the scissors, or an unstable tendency. This phenomenon may be treated as an augury of the tendency towards equalization of fertility in urban and rural areas.

Using the same sources let us consider death levels and trends. Up to the 1870's there were, on the average, 35 deaths and over per 1,000 inhabitants. Beginning with the 1870's a slight decline in the death rates is noticeable, accelerating in the 1890's. The declining trend lasted until World War I and has continued through the inter-war period and after World War II up to the present day (Table 2.1 and Chart. 2.1). The development of the health service and the popularization of hygiene, as well as improvements in the living conditions of the population are the reasons for this desirable trend.

Infants were the first to feel the benefits of increased hygiene and better living conditions (Table 2.10). In the 1950–1973 period the infant death rate declined four-fold. The differences between urban and rural areas are less than 2 per cent in favour of towns, and the differences between the rural areas and Warsaw are only 8 per cent in favour of the capital.

TABLE 2.10. PROBABILITIES OF INFANT DEATH IN THE YEARS 1971/1972 IN THE VOIVODSHIPS OF POZNAŃ, BYDGOSZCZ, ZIELONA GÓRA

Age in months x	Probability of death q_x			
	Urban areas		Rural areas	
	Males	Females	Males	Females
0	0.0216	0.0151	0.0171	0.0140
1	0.0024	0.0020	0.0030	0.0023
2	0.0024	0.0020	0.0032	0.0019
3	0.0019	0.0008	0.0022	0.0022
4	0.0008	0.0008	0.0016	0.0019
5	0.0008	0.0007	0.0009	0.0013
6	0.0005	0.0004	0.0011	0.0005
7	0.0005	0.0005	0.0006	0.0008
8	0.0005	0.0004	0.0007	0.0005
9	0.0003	0.0001	0.0003	0.0004
10	0.0002	0.0002	0.0003	0.0003
11	0.0001	0.0000	0.0001	0.0002

It can be seen from Table 2.10 that the probability of death, from the second month onwards is very small. This is indirect evidence of the disappearance of exogenous causes of death.

Changes in the general mortality level are presented by curves of death probability functions for the years 1931/1932 to 1971/1972. (Charts 2.7 and 2.8) The minima of these functions continue to decline. For women the probability curve for 1971/1972 is located below earlier curve, which means that the level of mortality in most age group declined. For men, on the other hand, the probability curve is located – between earlier curves, which indicates and increase in male overmortality.

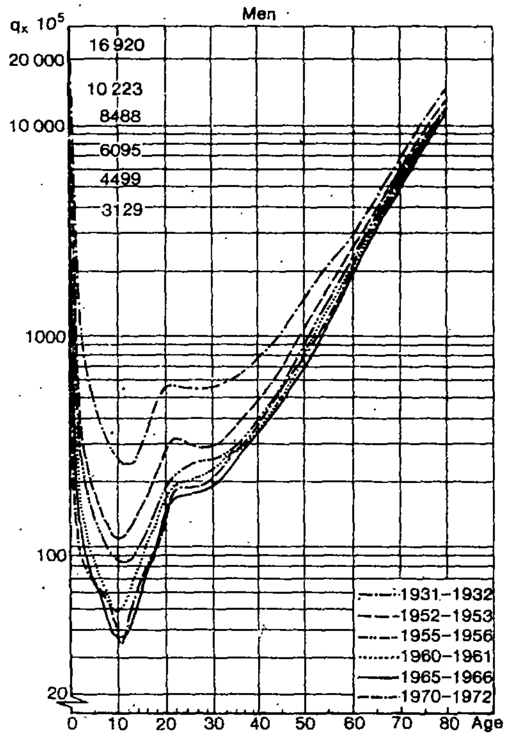


Chart. 2.7. The probability of death according to Polish life table

We notice the same thing by following changes in average life expectation (e_x). At the turn of the 19th and 20th centuries the average at birth amounted to 34.2 years (33.1 years for men, and 35.4 years for women). The difference amounted only to 2.3 years. In 1970/1972 we obtain for men $e^o = 66.8$, and for women $e^o = 73.8$; thus male overmortality has reached the level of seven years (Table 2.11).

The difference between the birth rate and the death rate represents the natural increase (Table 2.12 and Chart 2.1).

The differences in the natural increase are determined primarily by changes in the birth curve. Three periods of intensified natural increase, lasting between one dozen to several dozen years, may be distinguished. The first such period occurred during the demographic revolution, lasting from the 1870's to World War I. The second period, which coincided with the compensation period after World War I, occurred in the 1920's. Finally, a third period of the same nature was observed for about a dozen years after World War II. After periods of intensified increase a tendency towards stabilization developed; this was interrupted by the two world

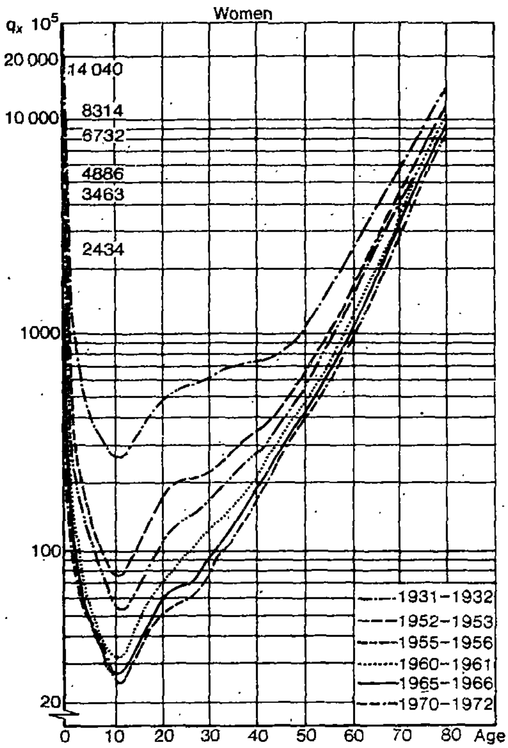


Chart. 2.8. The probability of death according to Polish life table

wars. Now we are also observing a tendency towards stabilization at a very low level of natural increase; there is even the danger of a natural population decrease.

Another measure of the natural increase is the gross and net population reproduction. Its declining trend is analogous to the fertility trend observed before (Table 2.8 and 2.9). In 1973 the overall national net reproduction coefficient reached the level of 1,055, with 1,449 in the rural areas, 0,805 in the urban areas and 0,599 in Warsaw. Chart 2.6 presents the "reproductions scissors" mentioned above. Apart from slight fluctuations around 1970, these scissors are continuing to open.

In investigating population reproduction in the sense of the replacement of generations in historial development, one can hardly fail to notice profound qualitative changes in addition to the quantitative ones. At the beginning of the 19th century the process of replacement of generations was of a prominently natural

TABLE 2.11. AVERAGE FURTHER LIFE EXPECTATION IN POLAND IN THE LIGHT OF PRE–WAR AND POST–WAR LIFE TABLES

Years	Average further life expectation for persons aged:				
	0	15	30	45	60
			Men		
1896/75 (1900/01)	33.1				
1922[a]	47.8	48.2	36.8	25.1	14.0
1931/1932	48.2	47.8	36.0	24.0	13.7
1952/1953	58.6	52.1	38.9	25.9	14.7
1955/1956	61.8	53.9	40.2	26.9	15.4
1960/1961	64.8	54.8	41.1	27.6	15.8
1970/1972	66.8	54.6	40.7	27.3	15.5
			Women		
1896/1897 (1900/1901)	35.4				
1922[a]	50.3	49.8	38.0	26.3	14.8
1931/1932	51.4	49.8	38.0	26.4	15.1
1952/1953	64.2	56.7	43.0	29.6	17.3
1955/1956	67.8	58.9	44.8	31.1	18.5
1960/1961	70.5	59.9	45.5	31.5	18.6
1970/1972	73.8	61.1	46.5	32.3	19.3

[a]The data for the Poznań and Pomorze voivodships.

character. Natural fertility was the prevailing rule and natural disasters controlled the level of mortality. In the course of time, an increasingly more educated society harnessed both these processes. We cannot determine the level of demographic education of a population, nor its ability to control births and the sex of children. We can say, however, that the level of demographic education increases and is a function of the level of general and vocational education.

General, vocational and demographic education facilitates the formation of new hierarchies and objectives; the shaping of relations between durable goods, children and entertainment, previously unknown, the selection of means for achieving these objectives and relations. The activities of society from this point of wiew may be compared in the spatial and temporal aspect by measuring the combination of two variables: the level of education and of fertility (the legend of Chart 2.10). On the diagonal of the rectangle we see the degrees: 11 – socio-demographic stagnation; 22 – moderate development; 33 – dynamic socio-demographic development.

A very revealing phenomenon is presented in Chart 2.10. In the centre and eastern part of the country there is a great socio-demographic ally stagnation

TABLE 2.12. NATURAL INCREASE IN THE YEARS 1808–1974

Years	Natural increase	Years	Natural increase	Years	Natural increase
1808	6.4				
1810	12.2	1920	4.2	1951	18.6
1816–1830	15.4	1921	11.9	1952	19.1
1831–1850	9.8				
1850–1870	9.1	1922	15.4	1953	19.5
1871–1890	11.9	1923	18.3	1954	18.8
1891–1894	12.2	1924		1955	19.5
1895	17.1	1925	18.5	1956	19.1
1896	18.5	1926	15.3	1957	18.1
1897	18.0	1927	14.3	1958	17.9
1898	17.5	1928	15.9	1959	16.1
1899	17.9	1929	15.3	1960	15.0
1900	18.5	1930	17.0	1961	13.3
1901	18.3	1931	14.7	1962	11.9
1902	18.3	1932	14.0	1963	11.7
1903	16.8	1933	12.4	1964	10.5
1904	16.6	1934	12.2	1965	10.0
1905	15.5	1935	12.1	1966	9.4
1906	17.5	1936	11.7	1967	8.5
1907	17.7	1937	10.9	1968	8.6
1908	17.0	1938	10.7	1969	8.2
1909	16.7	1946	16.0	1970	8.5
1910	16.2	1947	17.8	1971	8.5
1911	16.1	1948	18.2	1972	9.4
1912	16.7	1949	18.5	1973	9.6
1913	14.3	1950	19.1	1974	8.9
1919	3.6				

region. In Wielkopolska, in the western and northen territories, there are mostly regions and microregions of moderate socio-demographic development. However, in the south, west and north of Poland there are also regions and micro-regions of dynamic socio-demographic development. The latter have a very high percentage of young people who are both better educated and have rational procreative attitudes.

In our considerations so far we have generally used the method of transversal analysis. We shall confine ourselves now to the problem of marital fertility and the number of children per family, considering this process by cohorts of married women. The original data come from a sample sourvey of the number of children per family and of the relevant factors: the study began in 1966 and continues today.

We present in Table 2.13 the number of children born to mothers who had reached various ages up to the moment of observation. We have divided the families into groups according to the source of income. Mothers deriving their livelihood from individual farming have the greatest number of children. Families which derive

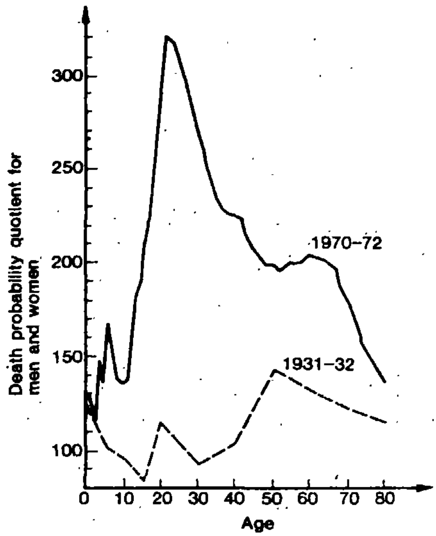


Chart. 2.9. Male over-mortality coefficient for the years 1931–32 and 1970–72

their income from socialized agriculture and forestry sources have slightly fewer children. Next in order according to the number of live births per mother are families which derive their livelihood from industry, construction, trade, transport and communications. Finally, families which derive their income from nonproductive services have the smallest number of children. In the particular groups there are differences in the level of education, in age at marriage and in the kind and level of occupational activity. These differences are, among other factors, the source of differences in the level of fertility.

If we now divide the families which derive their income from non-agricultural sources into three further groups arranged according to the previous source of income, we notice further differences in the number of children per mother. The number of children is greatest in those families in which both parents come from agricultural backgrounds; somewhat fewer children are in those families in which only one parent comes from such a background; finally, the smallest number of children is in those families in which both parents have always derived their income from non-agricultural sources (Table 2.14).

Worth noting are the probabilities of increasing the size of the family. We shall confine their presentation to the first four live births and consider in detail their variability during the first ten years of marriage (Table 2.15 and Chart 2.10).

The probabilities of giving birth to a child at any time in the course of marriage (column 1, Table 2.15) indicate the intensity of fertility. In towns these probabilities decline very fast when we move from lower to higher birth orders. A much smaller decline is noticeable in the rural areas.

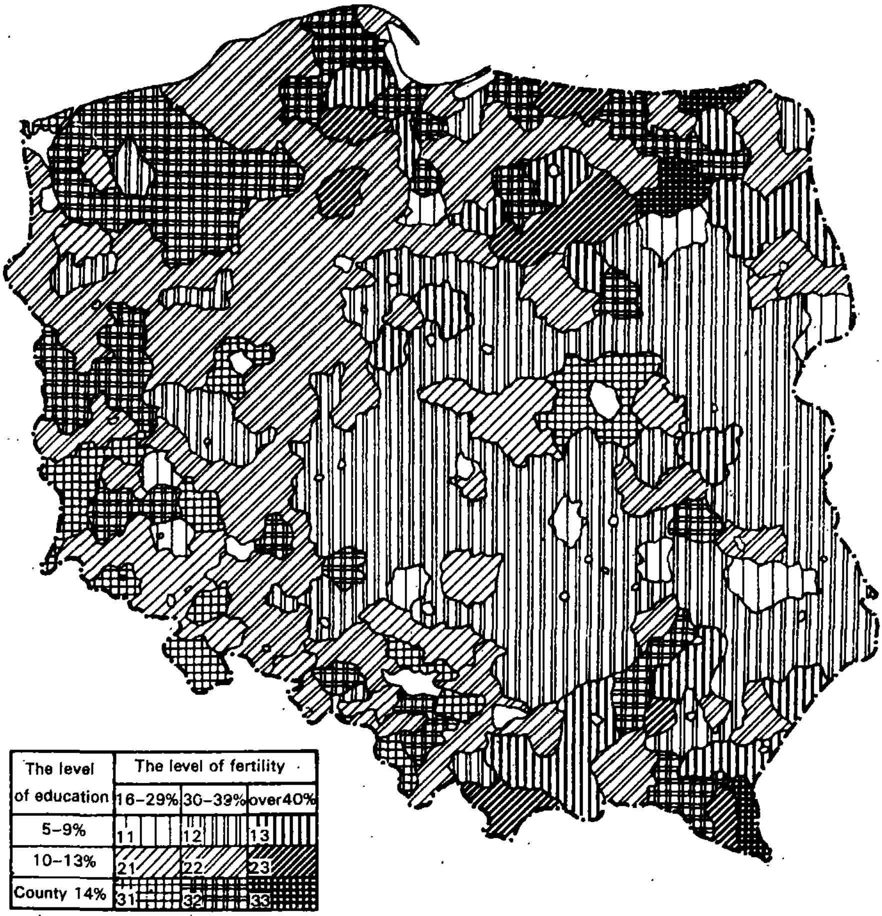


Chart. 2.10. Socio-demographic spatial differentiation for Poland in 1970 by counties (towns in counties have not been taken into consideration)
Areas: 11 – socio-demographic stagnation, 22 – moderate development, 33 – dynamic development. The level of education: the percentage of economically active with matriculation and higher education. The level of fertility: the number of children aged 0–4 years in relation to the number of women aged 15–49 years.

The probabilities which express the intensity of marital fertility may be distributed according to the number of years over which the marriage lasts. Such probability distributions form a fertility calendar. It can be seen from Table 2.15 and Diagram 11 that the probability distribution by marriage duration resembles the Poisson distribution. Probability distributions of further births become somewhat similar to normal distributions.

The question arises: what factors explain the differences in fertility and in the

TABLE 2.13. AVERAGE NUMBER OF LIVE BORN CHILDREN IN FAMILIES BY SOURCES OF INCOME AND AGE OF MOTHER IN 1966

Age of mother	Poland (46,780 families in the sample)					of which 5 biggest cities (5,369 families in the sample)		
	Source of family income							
	Total	Individual agriculture	Socialized agriculture and forestry	Industry, construction, trade, transport, communications	Non-productive services	Total	Industry, construction, trade, transport, communications	Non-productive services
up to 24	1.2	1.6	1.6	1.1	1.0	0.9	0.8	0.9
25–34	2.1	2.9	2.5	2.1	2.1	1.6	1.6	1.3
35–44	2.8	3.6	3.2	2.6	2.5	2.3	2.3	2.0
45–54	3.2	3.4	3.4	2.8	2.7	2.6	2.6	2.4
55 and over	3.0	3.2	3.2	2.7	2.5	2.4	2.6	2.0

TABLE 2.14. AVERAGE NUMBER OF LIVE BORN CHILDREN PER FAMILY DERIVING INCOME FROM NON-AGRICULTURAL SOURCES BY ORIGIN OF PARENTS AND AGE OF MOTHER IN 1966

Age of mother	Poland			of which 5 biggest cities		
	Source of Family income					
	Total	Industry, construction trade, transport	Non-productive services	Total	Industry, construction trade, transport	Non-productive services
Both parents come from agriculture up to 24 years	1.2	1.2	1.1	1.0	1.2	0.7
25–34	2.1	2.2	2.0	1.8	1.7	1.9
35–44	2.8	2.8	2.7	2.5	2.4	2.7
45–54	3.0	3.1	2.7	2.6	2.6	2.7
55 and over	3.0	3.0	2.8	3.0	3.2	2.6
One of the parents comes from agriculture						
up to 24 years	1.2	1.2	1.1	1.0	0.9	1.1
25–34	1.1	2.1	1.9	1.6	1.6	1.6
35–44	2.6	2.7	2.5	1.9	1.6	1.6
45–54	2.7	2.8	2.6	2.5	2.5	2.4
55 and over	2.8	2.7	2.9	2.3	2.4	2.2
Neither of the parents comes from agriculture						
up to 24 years	1.0	1.0	0.9	0.7	0.7	0.8
25–34	1.9	1.9	1.8	1.5	1.5	1.6
35–44	2.4	2.5	2.3	2.1	2.2	2.0
45–54	2.7	2.7	2.6	2.6	2.6	2.5
55 and over	2.5	2.6	2.3	2.0	2.2	2.8

TABLE 2.15. THE PROBABILITY OF GIVING BIRTH TO A CHILD IN A FAMILY (MARRIAGES CONCLUDED IN THE YEARS 1945–1949)

Order of birth	Probability of giving birth to a child in individual order													
	Ever	of which in the following years of marriage												
		0	1	2	3	4	0–4	5	6	7	8	9	5–9	10 and over
	City of Warsaw													
I	964	206	372	198	071	026	873	047	024	012	004	004	091	–
II	828	–	008	119	160	193	480	102	090	037	049	021	299	049
III	376	–	–	010	015	059	084	045	064	049	054	025	237	055
IV	250	–	–	–	–	–	–	013	026	026	040	040	145	105
	City of Wrocław													
I	949	282	338	114	061	046	841	042	026	005	010	010	093	015
II	848	–	043	189	135	162	529	092	070	070	033	005	270	049
III	490	–	–	006	032	064	102	070	070	051	057	051	299	089
IV	364	–	–	–	–	026	026	026	052	065	039	039	221	117
	City of Poznań													
I	994	477	369	096	032	008	982	005	003	002	002	–	012	–
II	904	–	049	217	245	133	644	116	061	026	020	020	243	017
III	510	–	–	–	049	079	128	074	069	069	049	030	219	091
IV	284	–	–	–	–	014	014	035	046	036	050	039	206	064
	Towns in the Poznań Voivodship													
I	980	413	374	111	037	018	953	017	005	001	–	001	024	003
II	901	007	067	252	219	139	684	087	043	028	019	015	192	025
III	689	–	–	010	075	112	197	124	109	062	058	043	396	096
IV	466	–	–	002	–	024	026	049	060	049	052	058	268	172
	Villages in the Poznań Voivodship													
I	994	544	268	131	015	010	968	008	004	010	–	001	023	004
II	930	–	073	320	222	157	771	063	030	022	022	004	141	026
III	759	–	–	012	136	119	267	151	110	064	060	030	415	097
IV	625	–	–	–	002	039	041	073	095	123	109	070	470	121

Note: zero before the point and the point omitted.

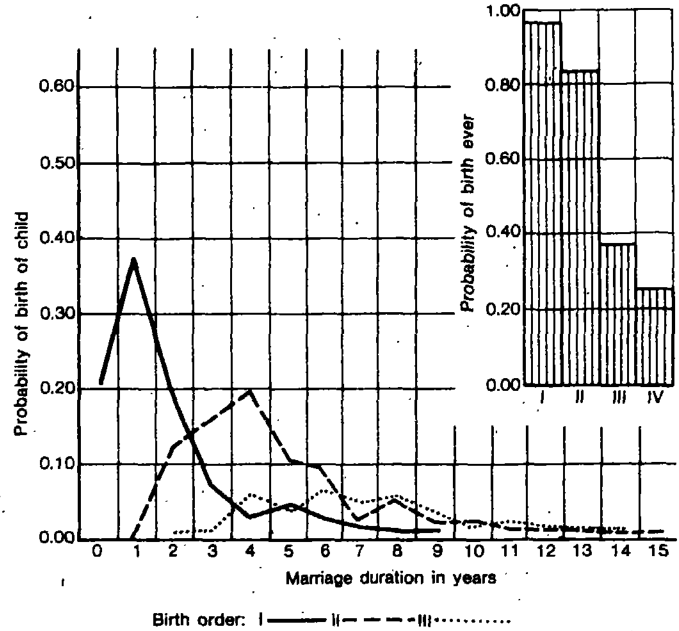


Chart. 2.11. City of Warsaw. The probability of increasing the family marriage concluded in the years 1945–1949

number of children in Polish families? To answer this question we shall use correlation-regression analysis as an introduction to factor analysis.

Variable x, denotes the number of live born children. The sociological factor appears in variables: x_2 — the number of children regarded by parents as ideal, x_3 — the number of children regarded by parents as appropriate considering the actual living conditions of the family. The demographic factor is represented by variables x_4 — the length of the interval in months between marriage and the first child, x_5 — the age of the mother at marriage, x_6 — the age of the father at marriage, x_7 — the number of children in the mather's family, x_8 — the number of children in the father's family. The cultural factor, confined to the level of education measured in years of learning at school, has been replaced by: x_9 — the education of the mother at marriage, x_{10} — the education of the mother at the time of observation, x_{11} — the education of the father at marriage, x_{12} — the education of the father at the time of observation. Finally, the economic factor is represented by seven variables: x_{13} — the size of the flat expressed in the number of rooms in the first year after marriage, x_{14} — the average size of the flat expressed in the number of rooms from the time of marriage to the birth of the last child, x_{15} — the size of the flat expressed in the number of rooms at the moment of observation: x_{16}, x_{17}, x_{18}: —

the size of the flat in square metres at the same respective instances; x_{19} – the average income per member of family during the period from the time of marriage of the parents to the time of birth of the last child; in the case of individual farmers – the size of the farm in hectares. Because of the scope of this work x_{19} – is excluded from our further considerations.

Assuming that the relationship is linear, coefficients of total, partial and multiple correlation have been calculated for all combinations of variables. (Table 2.16).

All independent variables may also be divided into variables which characterize the mother, variables which characterize the father and variables common to both parents. Multiple correlation coefficients between dependent variable x_1 and variables which characterize the mother and common variables, or between dependent variable x, and variables which characterize the father and common variables, explain, at the most, 60 to 70 per cent of the deviation of variable x_1 from its overall average.

The dependencies thus established enable us to determine the number of children per family by multiple regression equations. We select the variables according to the following two criteria: the significance of total correlation coefficients and the availability, reliability and long-term significance of the information. We confine ourselves to a description of the number of children born by mothers themselves born in the years 1921–1931 and were living at the time of observation in the five biggest Polish cities: Warsaw, Łódź, Kraków, Wrocław, Poznań.

Variables which characterize the mother and common variables

$$x_1 = 4{,}593 - \underset{(0.017)}{0.082\, x_5} - \underset{(0.022)}{0.060\, x_9}$$

percentage of variance in regression = 16.53

σ of remainder = 0.997

$$x_1 = 3.379 + \underset{(0.084)}{0.461\, x_2} - \underset{(0.016)}{0.077\, x_5} - \underset{(0.024)}{0.002\, x_7} - \underset{(0.022)}{0.046\, x_9} - \underset{(0.053)}{0.002\, x_{13}}$$

percentage of variance in regression = 26.60

σ of remainder = 0.911

Variables which characterize the father and common variables

$$x_1 = 3.679 - \underset{(0.013)}{0.024\, x_6} - \underset{(0.021)}{0.087\, x_{11}}$$

percentage of variance in regression = 10.61

σ of remainder = 0.998

$$x_1 = 2.368 + \underset{(0.087)}{0.469\, x_2} - \underset{(0.012)}{0.024\, x_6} + \underset{(0.028)}{0.032\, x_8} + \underset{(0.020)}{0.068\, x_{11}} - \underset{(0.054)}{0.023\, x_{13}}$$

percentage of varience in regression = 21.84

σ of remainder = 0.940

TABLE 2.16. ZERO DEGREE CORRELATION COEFFICIENTS BETWEEN THE NUMBER OF LIVE BIRTHS IN THE FAMILY (x_1) AND SELECTED VARIABLES

Age of mother in 1966	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}	x_{17}	x_{18}
								Five biggest cities in Poland									
under 25 years	0.114	0.192	0.429	−0.289	−0.036	0.118	0.100	−0.246	−0.233	−0.234	−0.162	0.055	0.151	0.298	0.020	0.113	0.230
25–34	0.331	0.189	−0.104	−0.348	−0.276	0.078	0.044	−0.176	−0.172	−0.145	−0.141	0.065	0.139	0.128	−0.009	0.059	0.062
35–44	0.368	0.334	−0.097	−0.371	−0.187	0.010	0.134	−0.277	−0.230	−0.304	−0.209	−0.016	0.066	0.282	−0.033	0.072	0.234
45–54	0.364	0.489	−0.078	−0.258	−0.187	0.163	0.231	−0.227	−0.227	−0.227	−0.228	−0.056	0.138	0.261	−0.083	0.088	0.266
55 and over	0.363	0.269	−0.009	−0.338	−0.347	0.166	0.149	−0.267	−0.269	−0.292	−0.277	−0.040	0.003	0.131	−0.082	0.031	0.042
								All towns in Poland									
under 25 years	0.209	0.316	0.333	−0.276	−0.062	0.088	0.207	−0.315	−0.326	−0.069	−0.073	0.116	0.097	0.103	0.080	0.115	0.197
25–34	0.465	0.474	0.003	−0.467	−0.250	0.137	0.260	−0.319	−0.338	−0.257	−0.215	0.002	0.062	0.062	0.046	0.127	0.146
35–44	0.116	0.280	−0.007	−0.279	−0.162	0.235	0.077	−0.242	−0.181	−0.123	−0.117	−0.110	0.027	0.251	−0.138	−0.044	0.120
45–54	0.400	0.406	−0.140	−0.234	−0.298	0.096	0.136	−0.178	−0.198	−0.152	−0.117	−0.020	0.128	0.272	−0.041	0.027	0.195
55 and over	−0.037	−0.005	−0.011	−0.042	−0.028	0.032	0.131	0.074	0.066	−0.016	−0.022	0.031	0.022	−0.003	−0.028	−0.040	−0.054
								Villages in Poland									
under 25 years	0.335	0.387	0.273	−0.217	−0.042	−0.003	0.133	−0.316	−0.298	−0.169	−0.162	0.027	0.048	0.040	0.049	0.083	0.103
25–34	0.552	0.515	−0.032	−0.320	−0.263	−0.038	0.121	−0.280	−0.272	−0.254	−0.202	0.126	0.161	0.222	0.231	0.279	0.326
35–44	0.500	0.333	−0.001	−0.242	−0.154	0.082	0.156	−0.129	−0.125	−0.114	−0.129	−0.187	−0.123	−0.055	−0.095	0.007	0.095
45–54	0.450	0.332	−0.049	−0.323	−0.255	0.058	0.156	0.152	−0.130	−0.138	−0.128	0.028	0.116	0.171	0.019	0.090	0.131
55 and over	0.308	0.241	−0.038	−0.349	−0.247	0.146	0.133	−0.007	−0.009	−0.069	−0.063	0.037	0.086	0.128	0.107	0.143	0.174

As regards the number of children, Polish society and Polish families have become progressive. Birth control protects both mothers and children. As we have seen from our correlation — regression analysis, the variables representing sociological and cultural factors are in significant relationship to the number of children per family. The most frequent motivation behind birth control is to achieve a higher standard of living. The search for methods and means of birth control is guided by such considerations as minimum risk on the one hand and the elimination of possible harm to mother or child on the other.

Chapter III

POPULATION COMPOSITION

POPULATION STRUCTURE BY AGE, SEX AND SOCIAL GROUP

In consequence of the political and economic changes which took place in Poland after World War II, tremendous population movements began from rural to urban areas on a scale unprecedented in our history. This resulted in a rapid increase in urban population[1]: from 7.6 million at the end of 1945 to about 18 million at the end of 1973; i.g. an increase of about 140 per cent. The average annual increase in the urban population also varied in different five-year periods from 5.5 per cent in 1951–1955 to 1.7 per cent in 1966–1970. The initially high rate of this increase was caused both by mass migration to towns, and by administrative changes due to which rural areas were incorporated in administrative urban areas, or became towns (the number of towns increased from 706 in 1950 to 889 in 1970).

The proportion of the urban population to the total population of the country increased in the period under consideration from 31.8 per cent at the beginning of 1946 to 39.0 per cent in 1950 to 48.4 per cent in 1960 and 52.3 per cent in 1970. At the same time the proportion of the rural population to the total population declined from 68.2 per cent in 1946 to 61.0 per cent in 1950 to 51.6 per cent in 1960 and 47.7 per cent in 1970. This process, as is generally known, is typical of a society undergoing the process of urbanization (Chart 3.1).

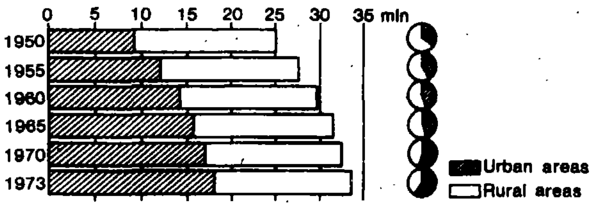


Chart. 3.1. Urban and rural population as of 31 December

[1]In Poland the division into urban and rural population is based on the administrative and not the statistical criteria.

The increase in urban population is related to the functions which it performs in the economic and political life of the country. This contention is confirmed by the particularly rapid population increase in the five biggest cities, i.e. Warsaw, Łódź, Kraków, Wrocław and Poznań. The demographic processes now typical of these cities determine the directions in which the demographic situation of this rapidly urbanized country will develop.

The rapid decline in the percentage of the rural population is noticeable in all voivodships and the present differences between them, in so far as the percentage of the rural population compared to the total population is concerned, result from differences in the industrialization of the particular voivodships. The highest proportion of rural population was recorded in 1973 in the Rzeszów voivodship (70.3 per cent), the Kraków voivodship (67.2 per cent), the Lublin voivodship (67.0 per cent), and the lowest in the Katowice voivodship (21.8 per cent), the Gdańsk voivodship (25.6 per cent) and the Szczecin voivodship (32.2 per cent).

In order to realize to what extent and at what pace pre-war agricultural-industrial Poland has become an industrial-agricultural country, let us note that the changes characterized by the increase in the percentage of the urban population have been accompanied by even more profound and more rapid changes in the process of leaving work in agriculture and taking up non-agricultural employment. This applies primarily to the population still living in the rural areas but deriving income from non-agricultural sources (Table 3.4). While these people change the source of income (this applies primarily to the population in younger age groups), they do not change their place of residence, partly because of the difficulties in getting an apartment in town, and partly because the members of rural farms employed outside agriculture commute to work to the nearest town, or are employed in industrial establishments or service establishments located in the rural areas.

While in 1950 only about 22.7 per cent of the rural population derived its income from non-agricultural sources, in 1974 this proportion increased to 46.1 per cent. In the urban areas the percentage of population deriving income from agriculture has also declined. In 1950 this amounted to 7.1 per cent and in 1974 dropped to 4.4 per cent.

The present population structure of Poland by age and sex is affected by disturbances caused by the two world wars and by a substantial compensation increase after World War II (Table 3.1). This structure is a reflection and a consequence of vital events and of the dynamism of the changes which took place in the preceding decades in natural population movements.

The age pyramid, based on the data of the 1970 Census and on the GUS (Central Statistical Office) forecasts (Chart 3.2) illustrates the "peaks" and "lows" moving in time, as well as their "echoes" appearing after a certain time. Continuous changes in the population structure by sex and age as a historical consequence of war cataclysms and changes in procreative behaviour are reflected in the nature of Poland's demographic development in the last fifty years. These fluctuations caused

TABLE 3.1. POLAND'S POPULATION STRUCTURE BY SEX AND AGE IN 1973

Age in years	Population					
	in thousands			in percentages		
	Total	Males	Females	Total	Males	Females
Total	33,512.1	16,290.2	17,221.9	100.0	100.0	100.0
under 5	2,704.3	1,385.2	1,319.1	8.1	8.5	7.6
5–9	2,559.4	1,308.4	1,251.0	7.6	8.0	7.3
10–14	2,955.3	1,510.5	1,444.8	8.8	9.3	8.4
15–19	3,513.8	1,792.4	1,721.4	10.5	11.0	10.0
20–24	3,312.7	1,682.1	1,630.6	9.9	10.3	9.5
25–29	2,437.3	1,229.8	1,207.5	7.3	7.5	7.0
30–34	1,956.1	978.8	977.3	5.8	6.0	5.7
35–39	2,182.7	1,086.6	1,096.1	6.5	6.7	6.4
40–44	2,293.3	1,138.0	1,155.3	6.8	7.0	6.7
45–49	2,124.8	997.6	1,127.2	6.3	6.1	6.5
50–54	1,733.9	794.8	939.1	5.2	4.9	5.4
55–59	1,160.7	515.8	644.9	3.5	3.2	3.7
60–64	1,506.4	669.9	836.5	4.5	4.1	4.9
65–69	1,269.3	546.9	722.4	3.8	3.4	4.2
70–74	912.9	360.7	552.2	2.7	2.2	3.2
75–79	522.0	182.3	339.7	1.6	1.1	2.0
80 and over	367.2	110.4	256.8	1.1	0.7	1.5

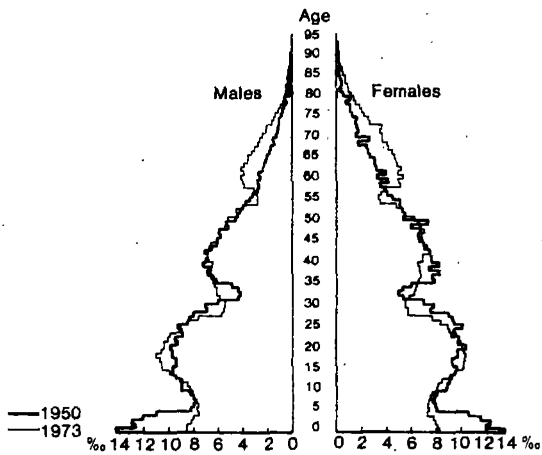


Chart. 3.2. Population by sex and age 1000 inhabitants

TABLE 3.2. WARSAW'S POPULATION STRUCTURE BY SEX AND AGE IN 1973

Age in years	Population					
	in thousands			in percentages		
	Total	Males	Females	Total	Males	Females
Total	1,387.8	641.5	746.3	100.0	100.0	100.0
under 5	70.5	36.2	34.3	5.1	5.6	4.6
5–9	64.9	33.4	31.5	4.7	5.2	4.2
10–14	80.2	40.8	39.4	5.8	6.4	5.3
15–19	124.9	63.8	61.1	9.0	9.9	8.2
20–24	142.6	70.4	72.2	10.3	11.0	9.7
25–29	118.7	58.3	60.4	8.6	9.1	8.1
30–34	87.0	40.6	46.4	6.3	6.3	6.2
35–39	104.6	48.0	56.6	7.5	7.5	7.6
40–44	120.1	57.7	62.4	8.7	9.0	8.4
45–49	110.3	53.2	57.1	7.9	8.3	7.6
50–54	83.8	38.4	45.4	6.0	6.0	6.1
55–59	53.2	21.6	31.6	3.8	3.4	4.2
60–64	71.9	29.0	42.9	5.2	4.5	5.7
65–69	62.9	23.6	39.3	4.5	3.7	5.3
70–74	44.1	14.5	29.6	3.2	2.3	4.0
75–79	27.0	7.3	19.7	1.9	1.1	2.6
80 and over	21.1	4.7	16.4	1.5	0.7	2.2

certain economic and social disturbances in the national economy which must be taken into account in development planning.

In the age pyramid of Poland's population, two clearly marked narrowings are noticeable. The first of them (the 55–60 year age group) are persons born during World War I who, in turn, suffered from the highest rate of extermination during World War II, having reached the age of 21–25 years, i.e. the age group for which war is most devastating. At present this group is in the final stage of its productive activity and in 5–10 years time it will reach retirement age. The second narrowing of the pyramid results from the relatively small number of persons in the 29–34 year age group who were born during World War II (1940–1945) and who will stop their productive activities after the year 2000.

The bulge in the pyramid covering the 44–52 year age group (those born in 1922–1930) and the 14–29 age group is a consequence of the post-war birth compensation after World War I and World War II. The first of these groups is fully active, while the second has already partially begun work and is partially still continuing education at secondary schools and universities.

A comparison of the age pyramid for 1950 with the pyramid for 1973 or for the

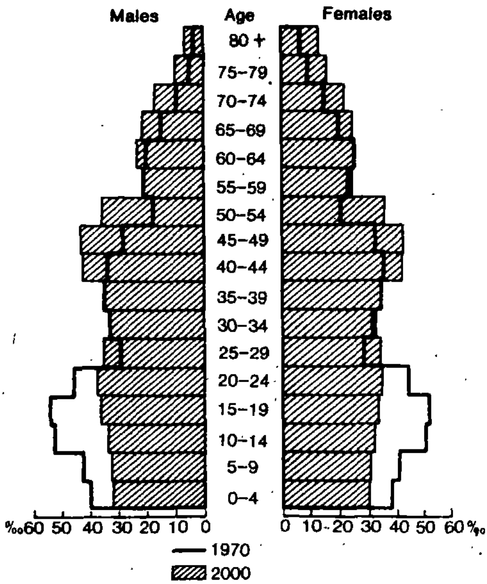


Chart. 3.3. Population structure in 1970 and 2000 by sex and age

TABLE 3.3. POLAND'S POPULATION STRUCTURE BY SEX AND IMPORTANT AGE GROUPS IN 1950–1970

Sex and age in years	Population					
	in thousands			in percentages		
	1950	1960	1970	1950	1960	1970
Total	25,035.0	29,795.2	32,657.7	100.0	100.0	100.0
under 7	3,881.3	4,854.3	3,590.3	15.5	16.3	11.0
7–17	4,912.6	6,290.7	7,184.3	19.6	21.1	22.0
18–64	14,922.9	16,899.8	19,146.8	59.6	56.7	58.6
65 and over	1,318.2	1,750.4	2,736.3	5.3	5.9	8.4
Males	11,942.0	14,414.3	15,861.5	100.0	100.0	100.0
under 7	1,972.6	2,480.9	1,835.7	16.5	17.2	11.6
7–17	2,477.5	3,197.6	3,668.6	20.8	22.2	23.1
18–65	6,972,9	8,071.7	9,294.5	58.4	56.0	58.6
65 and over	519.0	664.1	1,062.7	4.3	4.6	6.7
Females	13,093.0	15,380.9	16,796.2	100.0	100.0	100.0
under 7	1,908 7	2,373.4	1,754.6	14.6	15.4	10.4
7–17	2,435.1	3,093.1	3,515.7	18.6	20.1	20.9
18–64	7,950.0	8,828.1	9,852.3	60.7	57.4	58.7
65 and over	799.2	1,086.3	1,673.6	6.1	7.1	10.0

TABLE 3.4. POPULATION BY SOURCE OF INCOME AND VOIVODSHIP

Voivodships	1950	1960	1970	1974	1950	1960	1970	1974
	Non-agricultural sources				Agriculture			
	in percentages of total population							
Poland	52.9	61.6	70.2	72.9	47.1	38.4	29.8	27.1
urban areas	92.9	94.4	95.0	95.6	7.1	5.6	5.0	4.4
rural areas	22.7	30.9	43.0	46.1	77.3	69.1	57.0	53.9
Capital City of Warsaw	97.9	98.3	98.5	98.9	2.1	1.7	1.5	1.1
City of Kraków	95.6	97.0	97.7	98.6	4.4	3.0	2.3	1.4
City of Łódź	98.3	98.5	98.6	98.5	1.7	1.5	1.4	1.5
City of Poznań	97.9	98.1	97.6	98.1	2.1	1.9	2.4	1.9
City of Wrocław	97.2	97.8	97.7	97.5	2.8	2.2	2.3	2.5
Białystok Voivodship	27.2	37.5	47.3	51.8	72.8	62.5	52.7	48.2
Bydgoszcz „	55.1	61.0	66.7	70.4	44.9	39.0	33.3	29.6
Gdańsk „	71.7	76.6	80.8	82.9	28.3	23.4	19.2	17.1
Katowice „	86.7	90.0	93.1	94.1	13.3	10.0	6.9	5.9
Kielce „	31.6	42.9	57.8	61.9	68.4	57.1	42.2	38.1
Koszalin „	41.7	55.0	64.8	68.5	58.3	45.0	35.2	31.5
Kraków „	38.0	51.4	65.1	68.2	62.0	48.6	34.9	31.8
Lublin „	24.1	33.2	45.5	50.7	75.9	66.8	54.5	49.3
Łódź „	39.0	48.1	58.3	60.8	61.0	51.9	41.7	39.2
Olsztyn „	41.7	50.2	57.3	60.5	58.3	49.8	42.7	39.5
Opole „	58.5	64.9	73.9	77.4	41.5	35.1	26.1	22.6
Poznań „	48.1	55.3	62.9	64.9	51.9	44.7	37.1	35.1
Rzeszów „	27.5	41.3	57.0	60.6	72.5	58.7	43.0	39.4
Szczecin „	59.3	67.6	74.2	74.9	40.7	32.4	25.8	25.1
Warszawa „	38.0	46.9	57.2	58.9	62.0	53.1	42.8	41.1
Wrocław „	60.0	68.3	76.0	78.7	40.0	31.7	24.0	21.3
Zielona Góra „	52.3	64.0	72.9	75.6	47.7	36.0	27.1	24.4

year 2000 (chart 3.3) indicates clearly a considerable narrowing of the base of the latter, in consequence of the considerable decline in births after 1960. If these declining tendencies in fertility are maintained, they will result in the reproduction below replacement level by the year 2000.

An additional illustration of the population structure by certain particularly important age groups is given in Table 3.3.

The first group (under 7 years) comprises children of preschool age. Compulsory education in Poland begins after the age of 7 years. The second group (7–17 years) comprises young people in elementary and secondary schools. The third group (18–64 years) comprises the productive age population (young people beginning

TABLE 3.5. PRODUCTIVE[a] AND NON-PRODUCTIVE AGE POPULATION BY VOIVODSHIP, 1973

Voivodships	Productive age population in thousands			Non-productive age population per 100 persons in the productive age		
	Total	Urban areas	Rural areas	Total	Urban areas	Rural areas
Poland	19,284.7	11,244.3	8,040.4	73.8	61.4	91.1
Capital City of Warsaw	904.0	904.0	x	53.5	53.5	x
City of Kraków	428.6	428.6	x	53.3	53.3	x
City of Łódź	507.6	507.6	x	53.8	53.8	x
City of Poznań	316.2	316.2	x	57.8	57.8	x
City of Wrocław	381.4	381.4	x	46.9	46.9	x
Białystok Voivodship	630.6	279.4	351.2	88.6	68.1	104.9
Bydgoszcz "	1,093.5	614.5	479.0	79.6	67.2	95.6
Gdańsk "	908.1	685,6	222.5	69.5	60.4	97.4
Katowice "	2,346.5	1,875.3	471.2	64.6	61.0	78.8
Kielce "	1,046.5	399.4	647.1	81.7	65.2	92.0
Koszalin "	468.7	258.9	209.8	76.2	63.3	92.2
Kraków "	1,172.5	421.0	751.5	87.1	70.9	96.3
Lublin "	1,087.1	396.3	690.8	79.2	62.0	89.0
Łódź "	941.2	370.1	571.1	77.9	65.3	86.1
Olsztyn "	545.6	261.2	284.4	83.5	64.1	101.4
Opole "	607.3	291.5	315.8	78.6	66.3	89.9
Poznań "	1,213.2	527.9	685.3	84.2	72.9	92.9
Rzeszów "	960.7	317.9	642.8	87.6	68.2	97.2
Szczecin "	572.3	411.5	160.8	64.3	54.9	88.4
Warszawa "	1,425.9	577.7	848.2	78.3	64.0	88.1
Wrocław "	1,196.2	706.0	490.2	67.9	61.0	77.8
Zielona Góra "	531.0	312.3	218.7	72.4	63.3	85.4

[a]Limits of productive age are 18–64 years for men and 18–59 years for women

university education are also in this group) and the fourth group (65 years and over) comprises persons who have finished their productive activity.

The share of the first age group increases up to 1960 and then declines rapidly. As time goes by this numerous age group feeds the next group, whose share systematically increases. The percentage of population in the third group declines, while the percentage of the fourth group, reaching retirement age, increases (more for women than for men). Changes in the percentage of these age groups are evidence of the progressing process of aging of Poland's population[2].

[2]See: E. Rosset, *Aging Process of Population*, Pergamon Press, Oxford, London, Edinburgh, New York, Paris, Frankfurt, 1964 and: *Ludzie Starzy (Old People)*, Warszawa 1967.

The population at productive and non-productive age is illustrated in Table 3.5. The geographical differences are quite substantial in the particular regions of the country. The highest percentages of postproductive age population are recorded in the Białystok and Olsztyn voivodships, which are among the least urbanized.

The dynamism and structure of change in these population groups in the 1950–1973 period are illustrated in Table 3.6. While the population of the country increased in this period by 34 per cent, and the population at productive age by 33 per cent, the retirement age population increased by 122 per cent. This is reflected in the structure index, from which it follows that the proportion of productive age population has remained (with the exception of some decline in the 1970's) at an almost unchanged level, while the percentage of the post-productive

TABLE 3.6. PRODUCTIVE[a] AND NON-PRODUCTIVE AGE POPULATION IN 1950–1973

Years	Total	Age		
		Pre-productive	Productive	Post-productive
		In thousands		
1950	25,035	8,794	14,481	1,760
1960	29,795	11,144	16,271	2,380
1965	31,551	11,571	17,058	2,922
1970	32,658	10,775	18,324	3,559
1971	32,905	10,612	18,635	3,662
1972	33,202	10,463	18,940	3,799
1973	33,512	10,319	19,285	3,908
		Indices		
1950	100	100	100	100
1960	119	127	112	135
1965	126	132	118	166
1970	130	123	127	202
1971	131	121	129	208
1972	133	119	131	216
1973	134	117	133	222
		Proportions		
1950	100.0	35.1	57.9	7.0
1960	100.0	37.4	54.6	8.0
1965	100.0	36.7	54.1	9.2
1970	100.0	32.9	56.2	10.9
1971	100.0	32.3	56.6	11.1
1972	100.0	31.5	57.1	11.4
1973	100.0	30.8	57.5	11.7

[a]Limits of productive age are 18–64 years for men and 18–59 years for women.

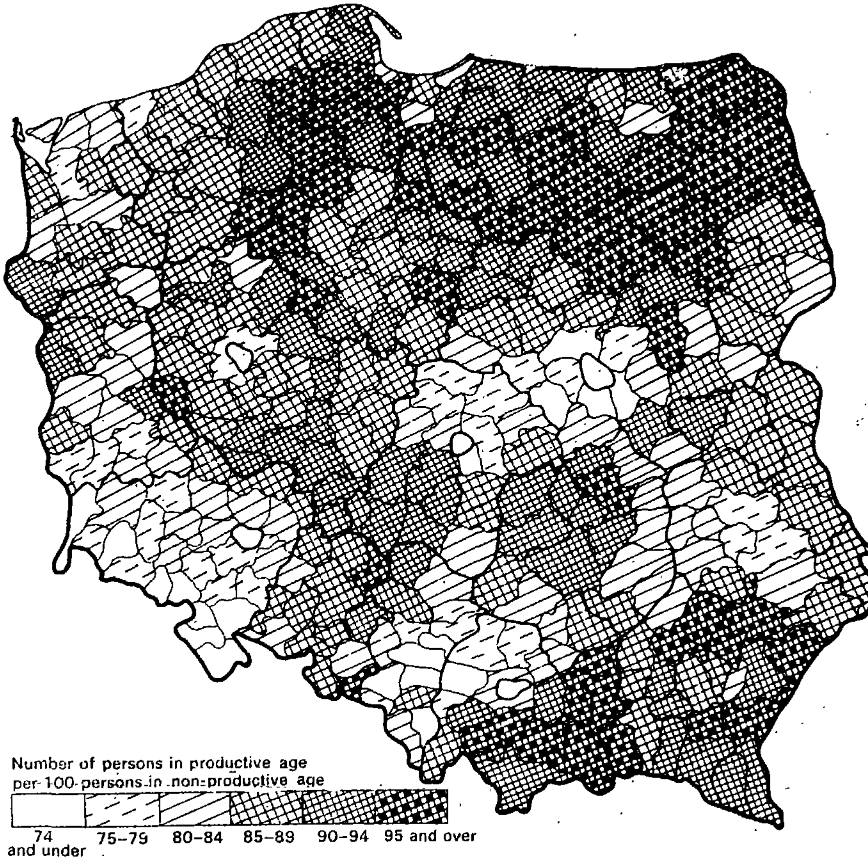


Chart. 3.4. Dependency ratio by counties

TABLE 3.7. DEPENDENCY RATIO

Year	Number of persons in non-productive age per 100 persons in productive age[a]		
	Total	Males	Females
1950	73	71	74
1960	83	79	88
1965	85	79	91
1970	78	71	86
1971	77	69	84
1972	75	68	83
1973	74	66	82
of which:			
urban areas	61	55	68
rural areas	91	81	102

[a]Limits of productive age are 18–64 years for men and 18–59 years for women.

age group, compared with the total population, has steadily been increasing, with a simultaneous considerable decline in the proportion of the group comprising children and infants.

The degree of dependency of children and young people as well as old people on the population of productive age is illustrated in Table 3.7 and in Chart. 3.4. The higher value of the indicators for the 1970's corresponds to the decline in the productive age population over the same period. It can clearly be seen from the Table 3.5. that this phenomenon is more pronounced in rural areas and is stronger in agricultural areas (Chart 3.4) than in the areas being urbanized and industrialized.

It should be emphasized here that our analysis is made with reference to strictly defined limits of pre-productive, productive and post-productive age groups which do not necessarily coincide in reality with the ability or inability to work, especially in the rural areas where, because of the rapid outflow of young people and of people in the productive age group, people of post-productive age frequently

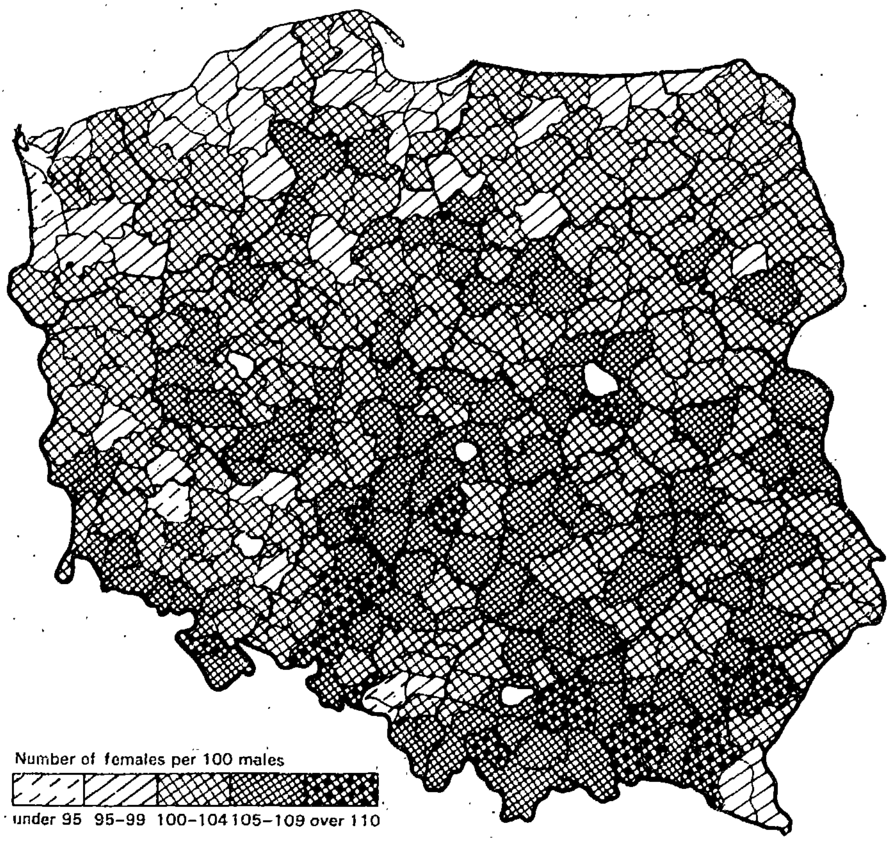


Chart. 3.5. Female over-population in 1973 by counties

TABLE 3.8. WOMEN IN REPRODUCTIVE AGE IN 1950–1973

Age groups	1950	1955	1960	1965	1970	1973
			in thousands			
Total	6,757.6.	6,997.3	6,910.8	7,367.0	8,192.0	8,576.9
16–19	955.4	910.6	763.3	1,155.9	1,354.1	1,382.9
20–24	1,212.2	1,181.8	1.089.9	945.6	1,459.0	1;630.6
25–29	1,133.2	1,198.7	1,152.1	1,093.7	939.6	1,207.5
30–34	753.6	1,119.5	1,191.0	1,154.7	1,079.4	977.3
35–39	924.0	743.1	1,108.0	1,193.1	1,129.9	1,096.1
40–44	955.6	908.6	727.0	1,101.8	1,158.6	1,155.3
45–49	823.6	935.0	879.5	722.2	1,071.4	1,127.2
			in percentages			
Total	100.0	100.0	100.0	100.0	100.0	100.0
16–19	14.1	13.0	11.0	15.7	16.5	16.1
20–24	17.9	16.9	15.8	12.8	17.8	19.0
25–29	16.8	17.1	16.7	14.9	11.5	14.1
30–34	11,2	16.0	17.2	15.7	13.2	11.4
35–39	13.7	10.6	16.1	16.2	13.8	12.8
40–44	14.1	13.0	10.5	14.9	14.1	13.5
45–49	12.2	13.4	12.7	9.8	13.1	13.1.

work on farms untill they reach a very old age, far exceeding the official limits of economic activity.

An important role as regards the demographic situation of the country and future population growth is played by women of reproductive age. In this population of greatest importance is the percentage of women at the highest age of fertility, i.e. in the 20–24 and 25–29 age groups. The situation in this field is illustrated in Table 3.8. It follows from the figures that the rate of increase is the highest in the 20–24 age group. This is the result of women from the post-war demographic boom entering the reproductive age; the proportion of this group, as compared with the general population of women of productive age, is increasing.

The population structure by sex in Poland reflects the influence of a number of events and historical processes. Primarily it has been influenced by the two world wars; the high overpopulation of women after World War I, especially in the 15–39 age group, had not managed to recede in the twenty-year inter-war period before the next war claimed new victims among the male population, thus bringing about a new distortion in the balance of the sexes (Table 3.9). This resulted in considerable disproportions in particular age groups. Other vital events such as, for instance, a higher share of woman in migration to towns contributed to the geographical differentiation of this phenomenon and the differences between urban and rural areas (Table 3.10 and Chart 3.5). An excess in the number of men over

TABLE 3.9. NUMBER OF WOMEN PER 100 MEN IN POLAND BY AGE GROUPS

Age groups	1921	1931	1950	1955	1960	1965	1970	1973
Total	107	106	110	108	107	106	106	106
0–4 years	97	97	97	96	96	95	96	95
5–9	99	98	98	97	96	96	95	96
10–14	98	98	98	98	97	96	96	96
15–19	112	106	100	99	98	97	96	96
20–24	115	103	104	99	100	99	97	97
25–29			115	104	100	100	99	98
30–39	117	113	118	113	110	103	100	100
40–49	109	115	112	116	117	116	111	107
50–59	106	114	126	121	115	117	120	121
60–69	106	116	144	142	139	143	126	128
70 and over	109	123	160	168	173		175	175

TABLE 3.10. ESTIMATE OF URBAN AND RURAL POPULATION BY SEX AS OF 31 DECEMBER

Year		Males	Females	Excess of females in thousands	Number of females, per hundred males
		in thousands			
1950					
	urban	4,322	4,921	599	113.9
	rural	7,620	8,172	552	107.2
1955					
	urban	5,698	6,369	671	111.8
	rural	7,534	7,949	415	105.5
1960					
	urban	6,923	7,478	555	108.0
	rural	7,491	7,903	412	105.5
1965					
	urban	7,533	8,148	615	108.2
	rural	7,786	8,084	298	103.8
1970					
	urban	8,184	8,904	720	108.8
	rural	7,678	7,892	214	102.8
1973					
	urban	8,711	9,437	726	108.3
	rural	7,579	7,785	206	102.7

the number of women is recorded in the areas in which large construction projects are under way, and big investments are being realized, attracting male workers, especially young ones with no family.

In the last two decades a considerable improvement has been noticeable in the sex ratios. The surplus of women has been declining steadilly and has moved to the older age groups. In the younger age groups, from 0 to 29 years, the number of men is now greater than the number of women; this creates favourable marriage prospects at the highest fertility age. The balance between the sexes has been noticeable in recent years in the 30–39 age group, with the surplus of women occurring over 40 years of age in consequence of the shorter average life exceptancy of men, among other reasons. It is the oldest age groups which are affecting the national average, which in 1973 was about 106 women per 100 men.

The sex ratio situation is most drastic in the five biggest cities in Poland: Warsaw (Table 3.2), Łódź, Kraków, Wrocław and Poznań, where there were in 1973, respectively, 116.3, 116.1, 109.3, 106.6 and 112.3 women per 100 men. No matter how disadvantageous the situation is now, it is still better than it was after the war, as recorded in the first post-war population census in Poland, according to which for every 100 men there were 141 women in Warsaw, 134 in Łódź, 134 in Kraków, 143 in Wrocław and 125 in Poznań. By voivodships, the most feminized in 1974 were the following: Opole (108), Rzeszów (107), Łódź (107), Kraków (107), Bydgoszcz (106) and Lublin (106). The lowest excess of the number of women over the number of men has been recorded in the following voivodships: Szczecin (100.4), Koszalin (101), Gdańsk (102), and Olsztyn (102). These are immigration-type voivodships with a higher percentage of young people and with a greater number of men than women among immigrants.

POPULATION BY MARITAL STATUS

Knowledge of the population number and structure in the particular marital status categories (single, married, widowed, separated or divorced) is of basic importance for various demographic and social analyses.

The basic group from the point of view of division by marital status is the married population. In Poland this constitutes the basic reproductive population, because about 95 per cent of all births are births within marriage. The proportion of married men to the total number of men aged 15 years and over was about 64.2 per cent in 1950, 71.7 per cent in 1960 and 65.2 per cent in 1970. Among women aged 15 years and over the proportion of married women was: 55.3 per cent in 1950, 62.5 per cent in 1960 and 59.7 per cent in 1970.

An analysis of the population structure by marital status indicates considerable differences depending upon sex (Table 3.11 and Chart 3.6) and fairly substantial territorial differences, especially between the urban and rural population (Table 3.12 and 2.6) and between the population of small and big towns.

TABLE 3.11. STRUCTURE OF POPULATION AGED 15 YEARS AND OVER BY MARITAL STATUS: 1960 AND 1970

Marital Status	Total	Age and year of birth					
		15–19 1955–1951	20–24 1950–1946	25–29 1945–1941	30–44 1940–1926	45–59 1925–1911	60 and over 1910 and earlier
				1960			
Mean	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bachelors	25.0	99.2	72.2	28.7	8.0	3.8	3.1
Married	71.7	0.8	27.6	70.6	90.8	93.0	81.1
Widowers	2.5	0.0	0.0	0.1	0.3	2.1	14.7
Divorced and Separated	0.8	0.0	0.2	0.6	0.9	1.1	1.1
Women	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Unmarried	21.1	91.8	41.1	15.7	10.5	9.2	9.0
Married	62.5	8.1	58.0	82.3	84.1	69.0	35.0
Widows	14.9	0.0	0.2	0.6	3.4	19.7	55.0
Divorced and Saparated	1.5	0.1	0.7	1.4	2.0	2.1	1.0
				1970			
Men	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Bachelors	31.3	99.6	75.7	27.6	8.6	3.5	3.1
Married	65.2	0.4	24.1	71.2	89.1	93.0	83.8
Widowers	2.2	0.0	0.0	0.1	0.3	1.6	11.7
Divorced and Separated	1.3	0.0	0.2	1.1	2.0	1.9	1.4
Women	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Unmarried	24.7	95.5	46.6	14.1	6.8	7.9	8.9
Married	59.7	4.5	52.5	83.1	87.3	75.1	39.8
Widows	13.4	0.0	0.1	0.5	2.4	13.8	49.8
Divorced and Separated	2.2	0.0	0.8	2.3	3.5	3.2	1.5

The differences related to sex are reflected in the percentage of single persons being higher among young men than women. This is due to the fact that women get married at an earlier age than men. In the 20–24 age group 72.7 per cent of men in 1960 and 75.7 per cent in 1970 were still unmarried, while the percentage of single women in this age group was much lower, amounting to 41.1 per cent and 46.6 per cent, respectively.

The percentage of married men, however, was higher than the percentage of married women; this is undoubtedly related to the fact that the number of men is considerably greater than the number of women.

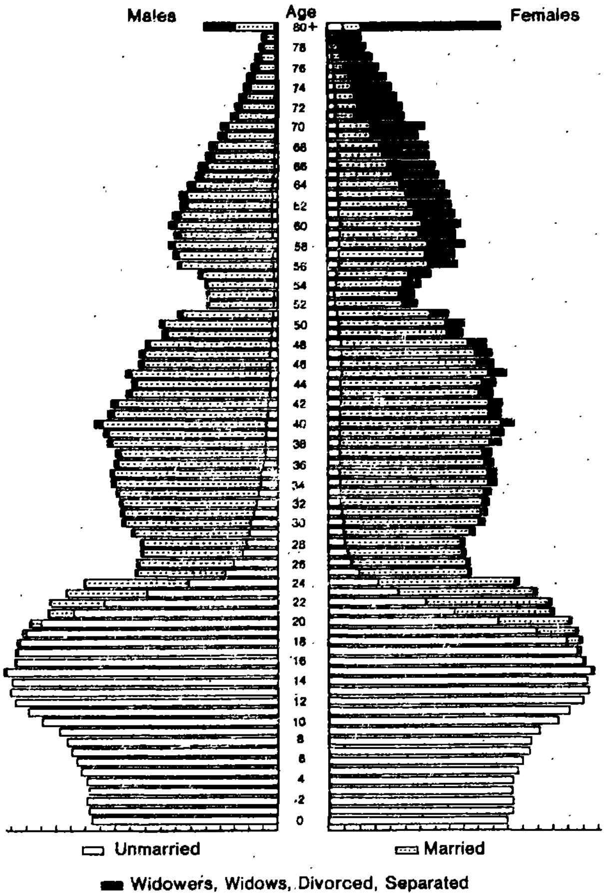


Chart. 3.6. Population by age and marital status in 1970

Worthy of note are the data on widowed among men and women. The percentage of widows is about 6 times higher than the percentage of widowers. This difference is greater for older age groups. It is well known that women live longer and therefore remain in the state of widowhood in older age groups longer than men.

The breaking up of marriages has also different consequences for men than for women. There are almost twice as many divorced and separated women than men. The cause of this phenomenon should be sought in the fact that men, who are in the minority, especially in the older age groups, can remarry more easily than women.

TABLE 3.12. URBAN AND RURAL POPULATION AGED 15 YEARS AND OVER BY MARITAL STATUS IN 1970

Marital Status	Urban areas		Rural areas	
	in thousands	in percentages	in thousands	in percentages
Men	6,129.1[a]	100.0	5,315.3[b]	100.0
Bachelors	1,933.8	31.6	1,639.0	30.9
Married	3,965.8	64.8	3,490.6	65.8
Divorced and Separated	112.4	1.8	33.1	0.6
Widowers	107.2	1.8	141.5	2.7
Women	6,940.5[c]	100.0	5,630.0[d]	100.0
Unmarried	1,841.5	26.6	1,254.7	22.4
Married	3,965.3	57.3	3,522.4	62.8
Divorced and Separated	222.2	3.2	51.2	0.9
Widows	896.6	12.9	783.0	13.9

[a, b, c, d] A certain number of persons with unknown marital status is included.

TABLE 3.13. MARRIED WOMEN AT REPRODUCTIVE AGE (15–49 YEARS) IN 1950, 1960 AND 1970

Age groups	1950	1960	1970	1950	1960	1970
	in thousands			As percentage of women in a given age group		
15–19	87	79	77	7.3	8.1	4.6
20–24	558	631	764	46.2	58.0	52.5
25–29	806	940	780	71.4	82.3	83.1
30–34	575	1016	952	76.6	85.7	88.4
35–39	705	936	995	76.5	84.6	88.1
40–44	706	585	991	74.1	81.0	85.5
45–49	578	666	871	70.4	75.0	81.4

The differences in the population structure by marital status between urban and rural areas, expressed in lower percentages of single persons in the rural areas, are undoubtedly due to the age at marriage being lower in those rural areas. The percentage of married persons is higher in the rural than in the urban areas, and the male population of the former exceeds the male population of the latter by one per cent, while the corresponding figure for women is about five per cent. It follows that in rural areas disproportions related to sex are smaller, and therefore it is easier to find a partner. This is corroborated, also by the fact that in the rural female population 91 per cent are married women under 35 year of age, while in the urban areas the corresponding figure is only 87 per cent (Table 2.10).

Also worth noting are the figures indicating the greater stability of rural area marriages. The percentage of divorced and separated men is three times as high in the urban areas as in the rural areas and of women three and a half times as high.

The age at which women get married is of great importance for population reproduction. This results from the well-known dependence between the age of woman at marriage and the number of children born to her.

The biological losses to the Polish nation caused by World War II have exerted a disturbing influence on the population structure by marital status and on the process of starting a family. The percentage of married women calculated on the basis of general population census data illustrates the disturbances caused by the war and the occupation of the country; during this period it was more difficult to start a family, and therefore marriages were postponed untill a later age, or were sometimes impossible because women could not find appropriate partners. The effects of these disturbances can clearly be seen from Table 3.3 for the year 1950, in which the percentage of married women fluctuated around 70 per cent and in none of the five-year age groups did it exceed 77 per cent. This situation improved considerably in the 1960's and 1970's when, due to the progressive levelling off of the disproportions in the number of men and women, the probability of getting married kept increasing steadily. The number of women starting a family in the younger age groups increased steadily, with a resultant concentration of marriages in the high fertility age groups.

HOUSEHOLDS

The important problem of the number and structure of households and families in Poland has not been adequately analysed so far, so its dynamism cannot be properly evaluated.

Households were dealt with by many consecutive population censuses (1931, 1950, 1960 and 1970), but the household data were published only in a fragmentary form (for instance only for the urban areas for 1950), and changes in the definition in particular censuses made any detailed comparisons impossible. The lack of required data caused that such problems important, from the socio-economic point of view, as the development of households in time, changes in their structure, their frequency and geographical distribution were not properly studied.

In the definition of "household" in the 1970 Population Census it was emphasized that this term means a group of persons composed most frequently of parents and their children and sometimes also other relatives, or even non-relatives, who occupy the same apartment and jointly run the household.

Those persons who live in the same apartment and are related, but pay their own expenses, constitute a separate household.

It should be emphasized that the community of maintenance has been the basic

TABLE 3.14. HOUSEHOLDS BY THE NUMBER OF PERSONS

Particulars	Total	Households by the number of persons					Average number of persons per household
		1	2	3	4	5 and over	
	in thousands						
Total 1960	8,253	1,267	1,542	1,586	1,647	2,211	3.47
1970	9,376	1,508	1,764	1,895	1,965	2,244	3.39
Urban areas							
1960	4,355	865	883	876	878	853	3.12
1970	5,390	1,079	1,078	1,193	1,187	853	3.03
Rural areas							
1960	3,898	402	659	710	769	1,358	3.87
1970	3,986	429	686	702	778	1,391	3.87
	in percentages						
Total 1960	100	15.3	18.7	19.2	20.0	26.8	x
1970	100	16.1	18.8	20.2	21.0	23.9	x
Urban areas							
1960	100	19.9	20.3	20.1	20.1	19.6	x
1970	100	20.0	20.0	22.1	22.1	15.8	x
Rural areas							
1960	100	10.3	16.9	18.2	19.7	34.9	x
1970	100	10.8	17.2	17.6	19.5	34.9	x

feature characterizing the definition of a household in all population census versions.

Households, as defined for census purposes, cannot be identified with the family as a biological unit which, if living apart, for example, as is the case in a considerable percentage of marriages, especially young ones, where the members still do not have their own apartment, has not been classified as a separate household.

Although the definition of the family as a statistical unit has not been worked out so far, it should be stressed that, beginning with the 1970 General Population Census, interest in the family as a basic biological unit in which all procreation decisions are made and which, therefore, has a decisive influence on the demographic situation of the country, has begun to grow. This manifested itself particularly in the so called "Family Questionnaire Survey 1972" conducted two years after the census. The role of a statistical unit identified with the family both in this survey and in other surveys conducted by Polish demographers has been and is played by women who are now or have ever been married.

"It is difficult to define the family as a statistical unit because of the diversity of the social functions performed by the family", says S. Borowski. "In addition to the socio-economic functions included in the term household, of great importance are: the procreative, educational, cultural and health care functions of

its members, both at home and abroad; abroad, the function of defence against denationalization is added. In considering these finctions an infinite number of definitions could be given[3]".

For the reasons mentioned above only the data obtained from the 1970 Populations Census supplied the statistical information required to present the structure of the houschold, the problem of joint utilization of apartments by these households, the description of this population from the point of view of household heads, i.e. persons indicated as the representatives of the households, or the relationship which other persons included in a given household bear to the household head.

All these data make possible a better description of the conditions in which households and families live in Poland.

According to the census data, the number of households in 1970 was 9,376 thousand and was higher by 1,123 thousand than in 1960, which means an increase by 13.6 per cent. Poland's population increased between these two censuses from 29,776 thousand in 1960 to 32,642 thousand in 1970, i.e. by 9.1 per cent. The more rapid growth in the number of households than in the population was caused, among other reasons, largely by the growing number of marriages in the more numerous age groups of the post-war demographic boom entering the reproductive age; this trend will probably be maintained in the 1970's. This poses many economic problems which are difficult to solve, especially in the field of housing construction, housing equipment and household appliances.

The growth in the number of households is not uniform throughout the whole country. The fact that it is greater in towns than in villages results from the considerable territorial differences. In city-type industrialized voivodships the increase in the number of households is greater than in the voivodships with a predominantly agricultural population. The greatest increase in the number of households, in some cases even twice as high as the average for the whole country, is observed in the biggest cities (e.g. Kraków by about 25 per cent, Wrocław by about 28 per cent).

It can be seen from Table 3.14 that the increase in the number of households in absolute terms is typical of all kinds of households, but is clearly greater in urban than in rural areas. In so far as the structure of these households by the number of persons living in them is concerned, clearly noticeable are certain shift in the groups with a smaller number of persons in the family at the expense of a decrease in the percentage of groups with the greatest number of persons in the family. This applies primarily to urban areas. The situation is somewhat different in the rural areas where the percentage of one- and two-person households increases slightly and the number of three-and – four-person households declines slightly, while the number

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[3]S. Borowski, *Rodzina jako przedmiot badań w Narodowym Spisie Powszechnym (The Family as a Subject of Study in the National Population Census)*, in: Aktualne Problemy Demograficzne Kraju (The Country's Demographic Problems), "Biblioteka Wiadomości Statystycznych", Warszawa 1974, Vo. 24 p. 204.

TABLE 3.15. HOUSEHOLDS BY THE DEGREE OF INDEPENDENCE OF ACCOMMODATION IN 1970

Particulars	Total		Urban areas		Rural areas	
	in thousands	in percentages	in thousands	in percentages	in thousands	in percentages
Total households	9,376.3	100.0	5,390.2	100.0	3,986.1	100.0
Accommodation:						
independent	7,043.0	75.1	3,831.4	71.1	3,211.6	80.6
with another household	1,753.1	18.7	1,082.9	20.1	670.2	16.8
with two or more other households	580.2	6.2	475.9	8.8	104.3	2.6

of five-person households is stable. The average size of household decreased in the 1960's only very slightly for the whole country; this decrease occured only in the urban areas, while the situation in the rural areas remained stable (Table 3.14 and 3.17).

Only 75.1 per cent of households in Poland live separately. The remainder live together with another household (18.7 per cent) or with more than two households (6.2 per cent). The development of housing construction in the inter-war period was aimed primarily at satisfying the requirements of towns. Housing resources suffered most severely during the World War II, and in such cities as Warsaw or Gdańsk were destroyed almost completely.

By directing the flow of housing investment almost exclusively to towns, the housing situation there has undoubtedly improved. However, households in the urban areas with respect to the problem of having self-contained apartments are still worse off than those in the rural areas. Moreover, those households which are in the worst housing situation are more than three times as numerous in the urban areas than in the rural areas (3.15). From about 2.3 million households whicn still do not have a selfcontained apartment, more than two thirds are in urban areas.

The 1970 Population Census in Poland recorded 8,196.6 thousand families. Because of the lack of proper statistical data from former population censuses it is difficult to make comparisons concerning the development of families in time. However, on the basis of family studies conducted by the "Economic and Demographic Statistics Centre" of the Academy of Economics in Poznań, the results of which have been published[4], we known that the trend in the number of

[4]S. Borowski, *Dzietność i rozkłady prawdopodobieństw powiększania rodziny w Polsce Ludowej (The Number of Children Per Family and the Probability Distributions of Increasing of Family Size in People's Poland)*, „Studia Demograficzne" Book 40/1975, pp. 29–67.

children per family in Poland has been declining in recent years. In particular, the percentage of families with three or more children has been decreasing.

The figures in Table 3.16 show that there are substantial differences in the number of children in families between urban and rural areas. In urban families the percentage of families with one or two children is higher, while in rural families those with three or more children are still quite numerous. However, the steady increase in the number of urban families justifies the assumption that in the future a family model with one or two children will predominate. This situation gives rise to many reservations, or even fears. A great deal has been said and written about the educational difficulties which the growth of families with one child may cause; family ties in families with a small number of children are much weaker than in those with many children, and this in turn results in a growing number of divorces and the de-socialization of children in families.

The structure of household in urban and rural areas by marital status and sex of household is shown in the data provided by 1970 Population Census according to which the predominant group among household heads are married men, both in urban and in rural areas. In most cases they are heads of multiple-person households. In the particularly numerous group of "others" are households

TABLE 3.16. FAMILIES BY THE NUMBER OF CHILDREN IN 1970

Number of children per family	Total		Urban areas		Rural areas	
	in thousands	in percentages	in thousands	in percentages	in thousands	in percentages
Total	8,196.6	100.0	4,360.8	100.0	3,835.8	100.0
Childless	1,683.0	20.5	880.1	20.2	802.9	20.9
1. child	2,529.6	30.8	1,512.3	34.7	1,017.3	26.5
2 children	2,222.5	27.2	1,282.2	29.4	940.3	24.5
3 children	1,036.3	12.7	461.1	10.6	575.2	15.0
4 children and more	725.2	8.8	225.1	5.1	500.1	13.1

TABLE 3.17. AVERAGE NUMBER OF PERSONS PER HOUSEHOLD

Year	Total	Urban areas	Rural areas
1960	3.47	3.12	3.87
1970	3.39	3.03	3.87
1974	3.31	2.97	3.81
1980	3.10	2.82	3.59

of widows and divorced women which, as the *figures indicate*, are even more numerous than households of married women. Unmarried women and bachelors are mainly heads of one person households.

EDUCATION OF THE POPULATION

Among the most important indicators of education in the country are: the level of illiteracy, the level of education measured by diplomas (certificates) from elementary, basic trade, secondary and university level schools, as well as school attendance. Statistical data for analysing and calculating these indicators are provided primarily by population censuses and by current records from the Ministry of Education, Science, and Schooling. Moreover, the Central Statistical Office has at its disposal the data obtained from periodic studies of the level of education of economically active persons employed in the socialized sector.

TABLE 3.18. POPULATION AGED 7 YEARS AND OVER UNABLE TO READ AND WRITE[a]

Sex	Years	Total: in thousands	Total: As percentage of population aged 7 years and over	Age in years: 7–13	14–17[b]	18–24[c]	24–49	50 and over
				in percentages				
Total	1921	7,552.9	34.6	24.7	8.8	10.4	30.7	25.4
	1931	5,945.9	22.6	9.3	6.9	9.2	39.0	35.6
	1950	1,144.6	5.5	3.6	1.9	3.8	22.3	68.4
	1960	664.0	2.7	1.2	0.7	1.4	12.9	83.8
Males	1921	3,291,7	32.0	28.5	9.5	8.6	27.5	25.9
	1931	2,229.5	17.7	11.7	7.2	9.3	35.3	36.5
	1950	405.4	4.2	5.2	3.2	5.7	25.2	60.7
	1960	215.4	1.9	1.9	1.2	2.3	16.5	78.1
Females	1921	4,261.2	37.0	21.8	8.2	11.8	33.2	25.0
	1931	3,716.4	27.1	7.8	6.7	9.1	41.3	35.1
	1950	739.2	6.6	2.8	1.2	2.7	20.6	72.7
	1960	448.6	3.5	0.8	0.5	1.0	11.2	86.5

[a]Data from general population censuses; [b]14–19 years in 1931; [c]20–24 years in 1931.

TABLE 3.19. POPULATION[a] AGED 15 YEARS AND OVER, BY SEX AND EDUCATION

Education	1960[b]			1970			1973		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
	in thousands								
Total	20,004	9,260	10,744	24,015	11,445	12,570	25,293	12,086	13,207
of which:									
Higher	415	285	130	655	426	229	795	496	299
Secondary[c]	2,046	989	1,057	3,198	1,440	1,758	3,665	1,654	2,011
Basic trade	630	471	159	2,531	1,711	820	3,323	2,171	1,152
Elementary[d]	7,838	3,556	4,282	11,620	5,378	6,242	12,214	5,747	6,467
	in percentages								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
of which:									
Higher	2.1	3.1	1.2	2.7	3.7	1.8	3.1	4.1	2.3
Secondary[c]	10.3	10.7	9.9	13.4	12.7	14.1	14.5	13.7	15.2
Basic trade	3.1	5.1	1.5	10.6	15.1	6.6	13.1	18.0	8.7
Elementary[d]	39.3	38.5	40.0	48.8	47.3	50.1	48.3	47.6	49.0

[a]For 1960 and 1970 – data from population censuses; for 1973 – estimates as of 31 December.
[b]Aged 14 years and over.
[c]Including post-secondary and incomplete higher education.
[d]Including incomplete secondary education.

The problem of illiteracy in Poland has been investigated in all consecutive general population censuses. However, the age limits used when collecting data concerning the ability to read and write have been different in different periods of time, and therefore accurate comparisons are difficult. The Censuses of 1921 and 1931 give the percentage of illiteracy of the population aged 10 years and over, while the subsequent censuses adopted the age limits from 14 and 15 years up. Illiteracy in Poland has virtually ceased to exist. This is a great achievement of the people's rule which, during the short period of time since World War II, has been able to eliminate the problem of illiteracy. This success is the greater that in the period before World War I the percentage of illiterates was high.

The elimination of illiteracy has been achieved by the introduction of compulsory education and by the initiation immediately after the war of special reading and writing courses which were aimed at the rapid elimination of illiteracy among adults.

The data concerning the ability to read and write collected in the 1970 Population Census confirm the fact of the almost complete elimination of illiteracy in Poland. It has been found that there are 414.7 thousand persons who can neither read nor write. This, in relation to the population aged 15 years and over, amounting to 24 million, is about 1.7 per cent. It should be emphasized that out of the number of illiterates mentioned above more than half (211.5 thousand) are people in the older age groups who are no longer economically active. About two thirds of the illiterates (296.9 thousand) live in rural areas.

The post-war period in Poland has witnessed a tremendous development in education. Compulsory education for children aged 7 years and over ensures that young people up to 15 years of age get elementary education. Young people aged over 15 years who wish to continue studying can do so in secondary schools. The educational system in Poland is based on the universality of education. The most able and ambitious young people, both in the rural and in the urban areas, can, after completing secondary education, continue their studies in schools of higher learning.

The fact that the possibilities of gaining knowledge and education in Poland are tremendous is best corroborated by the number of schools of higher learning awaiting young people. They are as follows: in 1937/38 there were in Poland 32 schools of higher learning, at which 49.5 thousand persons studied; in 1960/61 their number increased to 75, with 165.7 thousand students, and in 1973/74 to 89, with 397.9 thousand students. So the number of schools increased almost three-fold while the number of students rose eight-fold. To enable young people from small towns and settlements to continue their studies at universities, branches of schools of higher learning are being set-up; there are now 14 of these and also 107 so-called consultation centres which enable all people who wish to do so to complete their higher education as external students.

Schools of higher learning educate specialists in all fields. There are in Poland: 10 universities, 18 university-standard technical schools, 7 agricultural academies,

TABLE 3.20. POPULATION[a] AGED 15 YEARS AND OVER BY AGE AND EDUCATION

Education	Total	Age in years						
		15–17	18–24	25–29	30–39	40–49	50–59	60 and over
		As percentage of a given age group[b]						
		1960						
Higher	2.1	x	0.8	3.6	3.4	2.2	1.8	1.3
Secondaey[c]	10.3	0.7	18.4	17.2	11.2	9.3	7.2	5.6
Vocational	3.1	1.0	6.7	6.0	3.0	2.9	1.8	0.9
Elementary[d]	39.3	69.6	56.4	40.7	39.8	33.7	27.0	22.3
Incomplete Elementary and No schooling	45.2	28.7	17.7	32.5	42.6	51.9	62.2	69.9
		1970						
Higher	2.7	x	0.8	5.4	5.0	4.0	2.2	1.6
Secondary[b]	13.4	0.1	24.2	21.3	17.8	11.2	8.5	6.4
Vocational	10.6	3.1	28.1	16.6	10.6	5.6	5.3	2.5
Elementary[c]	48.8	80.1	44.0	52.4	52.3	50.3	43.0	34.8
Incomplete Elementary and No schooling	24.5	16.7	2.9	4.3	14.3	28.9	41.0	54.7

[a]Data from population cenusus.
[b]Aged 14 years and over.
[c]Including post-secondary and incomplete higher education.
[d]Including incomplete secondary education.

TABLE 3.21. NUMBER OF STUDENTS IN SCHOOLS OF GENERAL EDUCATION, VOCATIONAL SCHOOLS AND SCHOOLS OF HIGHER LEARNING (IN THOUSANDS)

Particulars	School years				
	1950/51	1960/61	1965/66	1970/71	1973/74
Elementary Schools	3,360.1	4,963.0	5,298.5	5,389.3	4,778.6
Secondary Schools	249.6	337.6	557.2	537.5	639.1
Vocational Schools	634.7	784.2	1,671.0	1,710.7	1,921.7
Schools of Higher Learning	125.1	165.7	251.9	330.8	397.9

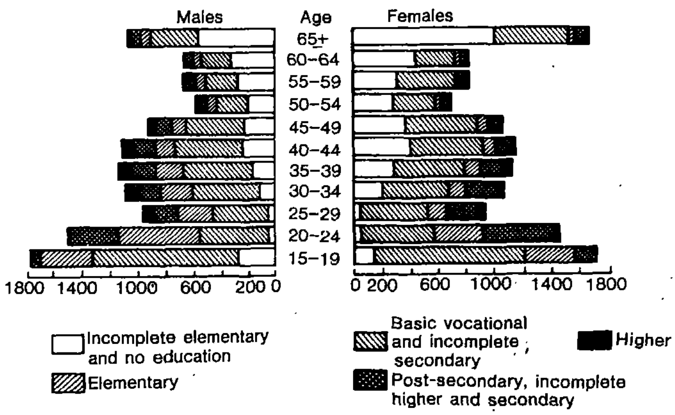


Chart. 3.7. Population aged 15 years and over by education in 1970

6 economics colleges, 6 higher pedagogical schools, 6 higher teaching schools, 10 medical academies, 2 higher marine schools, 6 physical education academies, 16 higher arts schools and 2 theological academies.

Attendance at higher schools is not the exclusive privilege of the élite. In order to provide support for young people from families in the lowest income brackets and to give an equal start for young people from the rural areas, the government of the Polish People's Republic has set up considerable scholarship funds for young people whose progress in study is good. The importance of this assistance can best be gathered from the expenditure from the government budget for these scholarships. In 1965 this amounted to 1,355 million zlotys, in 1970 – 1,806 million zlotys and in 1973 reached 2,757 million zlotys.

Progress in the intellectual development of the population is illustrated in Table 3.20 and 3.21. The figures indicate a rapid increase in the number of persons with higher, secondary and basic trade education. During the 1970's the number of men with higher education increased by 49.5 per cent and the number of women by 76.2 per cent; the number of those with secondary education increased by 45.6 per cent for men and 66.3 per cent for women.

The higher percentages of increase for women indicate the considerable cultural advancement of women in Poland; they participate fully and on the basis of equal rights with men in Poland's socio-economic life.

Also worth noting is the tremendous increase in the percentage of people with basic trade education; for men this amounts to 250 per cent and for women 336 per cent. This is of great importance for the national economy, which during this time of techno-scientific revolution needs a great number of personnel specializing in different fields.

In analyzing Table 3.20 and Chart 3.7 it is easily noticeable that: 1) the greatest increase in the population with higher education is in the 25–29 and 30–39 age

groups; in 1970 the indicators are also high for the 40–49 age group; 2) the percentage of population with less than elementary education declines in the younger age groups, shifting at the same time to the older age groups; 3) the percentages of persons with secondary education are increasing especially in the 18–24 and 25–29 age groups.

The development of schooling at all levels is measured by the number of students in the particular types of schools, as illustrated in Table 3.21.

It follows that the rate of growth in the number of students over the past decades was: for universities – 218 per cent, for trade schools – 203 per cent, for general secondary schools – 155 per cent and for elementary schools – 42 per cent.

In summing up we can say the level of education in Poland is now high. Illiteracy has been eliminated almost completely. One half of the population has elementary education, about 14.5 per cent of the population aged 20 years and over has secondary education and about 3 per cent of the population aged 25 years and over has university education. Both the development of schooling especially of university standard, and the shift in the educated population groups from younger to older age groups indicates that the marked contrasts still existing in the level of education of these groups will be modified in the future and the general level will be more uniform.

Chapter IV

INTERNAL MIGRATION

GENERAL REMARKS

Poland's post-war population growth is characterized by mass internal and external population migration; the former has had a much greater bearing on this growth. The analysis of migration is based on data from two sources: current records and censuses. These sources make possible a quantitative and qualitative evaluation of migration, as well as a comparison of trends and the intensity of migration. The main causes of Poland's multi-million population flows have been urbanization and industrialization, these being of much greater importance than demographic causes (family considerations). Because of changes in the social structure and the growing demand for labour along with the unequal distribution of manpower supply and differences in the population reproduction processes in urban and rural areas, internal population migration in this country did not slow down after the war, but kept increasing.

The demand for manpower in the regions being industrialized and in the urban areas is satisfied mainly from increases in migration and not from natural increases. In 1970 about 30 per cent of all persons economically active in construction in towns were immigrants who came to the towns in 1961–1970. Emigration to towns improves not only the demographic structure but also the qualifications structure of the inhabitants of the urban areas.

A comparison of the population by place of residence in 1970 and place of birth shows the translocations which took place after World War II; their magnitude is unprecedented in Poland's entire history. This applies primarily to the northern and western voivodships, sometimes completely depopulated, which had to be settled and developed rapidly. The importance of the problem can be appreciated from the statistics, which indicate that as many as 50 per cent of the inhabitants of these voivodships were born outside their borders.

In discussing the part of Poland featuring the greatest migrations in the post-war period, it is necessary to emphasize that in Zachodnie Pomorze (the Koszalin and Szczecin woivodships) the proportion of native population. i.e. those who were living in that region in 1939, was only 6 per cent in 1950. Among the migrant population, two thirds came from other woivodships. It follows that internal migration was of decisive importance in developing new communities in this region. These processes did not stop in subsequent years. The population which migrated

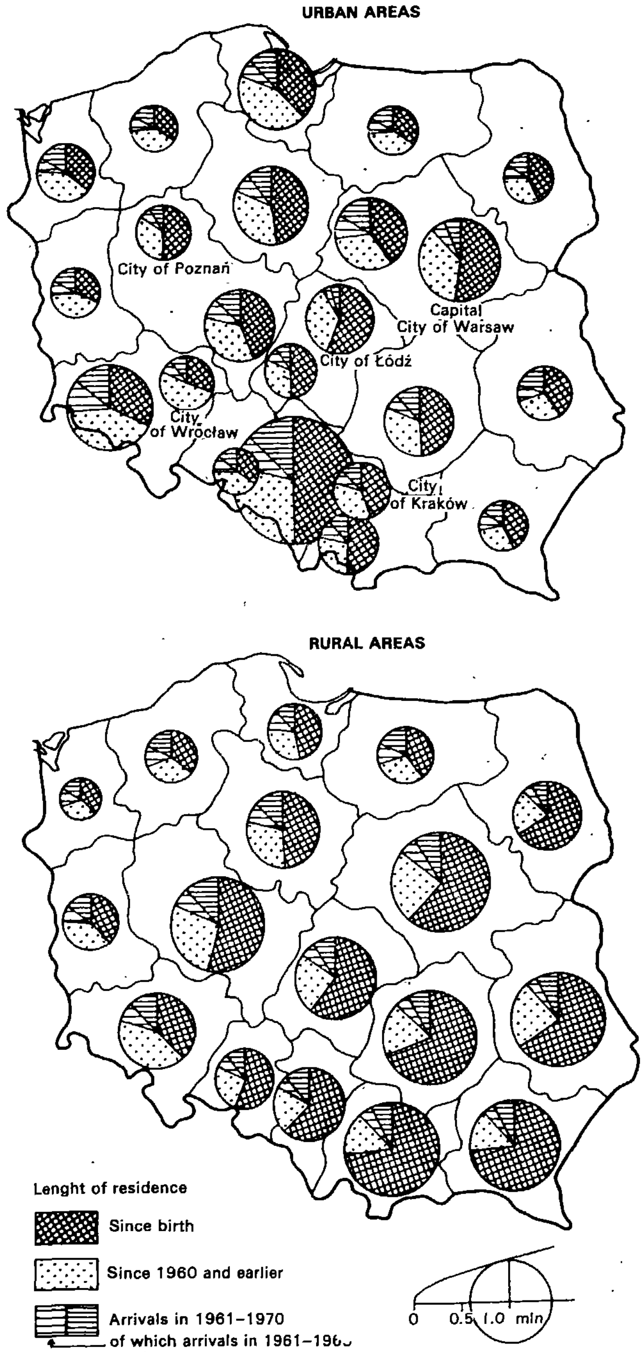


Chart. 4.1. Urban and rural population in 1970 by voivodships and lenght of residence

to the Zachodnie Pomorze in the 1951–1960 period accounted for about 22 per cent of the population in 1960; and for the 1961–1970 period the corresponding figure was 10 per cent of the population in 1970. In the whole post-war period intensive intra-voivodship migration also took place in this area. The 1970 General Population Census showed that the influx in 1961–1970 was: 28 per cent in the Koszalin voivodship, 25 per cent in Zielona Góra, 24 per cent in Szczecin, 22 per cent in Wrocław, 21 per cent in Gdańsk, 19 per cent in Katowice, with the average proportion of influx for the whole country amounting to 19 per cent.

By 1970 there were throughout the whole country 81 per cent born and residing in the same voivodship. This means that one fifth of the population migrated to outside the area of the woivodship in which they were born. This percentage varies for the particular voivodships: from 71 per cent for the Kielce voivodship to 92 per cent for Katowice. In the northern and western voivodships the percentage of those born there was already high in 1970; in some voivodships it was even higher than the percentage for the whole country. Natality process is at the root of this phenomenon, being greater there than in other parts of Poland.

TABLE 4.1. THE STRUCTURE OF INTERNAL POPULATION MIGRATION IN POLAND BY TERRITORIAL REGION AND DIRECTIONS

Particulars	Directions of migrations			
	from rural to urban areas	from urban to rural areas	from urban to urban areas	from rural to rural areas
	in percentages of the given direction			
A. Born and migrating				
1. within the voivodship	54.2	56.0		
2. to the remaining voivodships	45.8	44.0		
Total	100.0	100.0	100.0	100.0
B. Those changing the place of residence				
1. within the voivodship				
1951–1960	59.3	42.6	31.5	70.5
1961–1970	69.7	65.5	54.4	81.2
2. outside the voivodship				
1951–1960	40.7	57.4	68.5	29.5
1961–1970	30.3	34.5	45.5	18.8

Regional differences in the structure of the spatial reach of migration, whose point of reference is place of birth, were due to the level of socio-economic development of the outflow and inflow regions and to ties between subsequent migrations which followed the earlier ones. The extent of translocation reflected the properties and nature of the migration. This problem is illustrated in Chart 4.1. which shows clearly considerable differences in population mobility, depending upon the region and upon the place of residence in urban or rural areas.

The trends in, and proportions of, internal population migrations in Poland recorded in consecutive population censuses are presented in Table 4.1.

THE MAGNITUDE AND DIRECTIONS OF MIGRATION

The statistics based on current records for the 1951–1973 period show close to 26 million changes in place of residence. This indicates the considerable spatial

TABLE 4.2. THE VOLUME AND STRUCTURE OF THE AVERAGE ANNUAL POPULATION MIGRATION IN POLAND IN 1951–1973 BY DIRECTIONS OF MIGRATION IN THE LIGHT OF CURRENT RECORDS

Directions of migrations	1951–1955	1956–1960	1961–1965	1966–1970	1971–1973	1951–1973
	in thousands					
from rural to urban areas	377.8	322.1	260.8	253.1	278.4	293.9
from urban to rural areas	252.2	238.1	160.1	113.5	110.4	179.2
from urban to urban areas	390.1	311.6	225.7	189.4	196.9	263.4
from rural to rural areas	372.3	471.7	359.5	308.8	284.1	368.5
Total	1,392.4	1,343.5	1,006.1	864.8	869.8	1,105.0
	in percentages					
from rural to urban areas	27.1	24.0	26.0	29.3	32.0	26.9
from urban to rural areas	18.1	17.7	15.9	13.1	12.7	16.2
from urban to urban areas	28.0	23.2	22.4	21.9	22.6	24.1
from rural to rural areas	26.8	35.1	35.7	35.7	32.7	32.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

mobility of Poland's population. Added to this are changes in place of residence of a temporary nature, and mass migrations of the shuttle-movement type.

Every year about 1.2 million cases of changes of residence are recorded on the average; of these a substantial majority are intra-voivodship flows. From 1951 to 1970 there were only 800 thousand cases of inter-voivodship flows. This means that inter-voivodship migration in Poland is relatively small. The same may be said about the directions of migration, which were analyzed on the basis of information concerning the place of birth compared with the place of residence in 1970. The structure and volume of the average annual population migrations in 1951–1973 on the basis of current records are slightly different. It can be seen from Table 4.2. that there was a systematic increase in migration from rural to urban areas and a decline in migration from urban to rural areas. Worth noting are spatial differences in the intensity of migration. Some voivodships in Poland possess permanent immigration characteristics, while others have distinct emigration characteristics; there are also voivodships with mixed characteristics and a variable

TABLE 4.3. BALANCES OF INTERVOIVODSHIP POPULATION MIGRATION IN POLAND 1951–1970, BY VOIVODSHIPS

Voivodships	1951–1970	1951–1955	1956–1960	1961–1965	1966–1970
	in thousands				
Capital City of Warsaw	+234.3	+88.6	+16.8	+63.6	+65.3
City of Kraków	+94.5	+40.5	+2.9	+11.0	+40.1
City of Łódź	+42.1	+15.3	+1.1	+9.3	+16.4
City of Poznań	+54.0	+29.7	+2.3	+5.5	+16.5
City of Wrocław	+63.6	+16.6	+14.4	+14.0	+18.6
Białystok	–57.1	–17.0	–7.1	–14.4	–18.6
Bydgoszcz	–22.5	–29.8	+11.2	–1.8	–2.1
Gdańsk	+22.8	–9.2	–5.3	+14.3	+23.0
Katowice	+173.9	+53.2	–0.8	+42.8	+78.7
Kielce	–216.6	–73.9	–46.9	–53.9	–41.9
Koszalin	+4.6	+12.3	+1.4	–4.1	–5.0
Kraków	–91.5	–22.9	–6.9	–27.2	–34.5
Lublin	–118.5	–47.6	–21.3	–26.6	–23.0
Łódź	–94.9	–55.4	+8.5	–21.1	–26.9
Olsztyn	–18.4	+33.5	–20.0	–14.7	–17.2
Opole	+21.6	–9.9	+14.7	+12.5	+4.3
Poznań	–79.5	–63.6	+7.2	–7.6	–15.5
Rzeszów	–46.6	–20.1	–6.1	–9.2	–11.2
Szczecin	+71.3	+31.5	+14.9	+17.9	+7.0
Warszawa	–48.8	–7.5	+6.3	–18.0	–29.6
Wrocław	–26.0	+1.7	+5.6	+7.4	–40.7
Zielona Góra	+37.7	+34.0	+7.1	+0.3	–3.7
Total	±820.4	±356.9	±114.4	±198.6	±269.9

of migration. In the first group all cities with voivodship status can be included, as well as the Katowice and Szczecin voivodships, the positive balance of inter-voivodship exchange amounting to between 71 thousand for the Szczecin voivodship to 234 thousand for Warsaw (for the 1951–1970 period). The following voivodships were predominantly of the emigration type: Kielce (217 thousand), Lublin (119 thousand), Kraków (92 thousand), Białystok (57 thousand), Rzeszów (47 thousand). The remaining voivodships had in that period either positive or negative migration balances.

MIGRATION AS A COMPONENT OF ACTUAL INCREASE IN URBAN POPULATION

A peculiar feature of the contemporary growth of the urban population is the steadily rising share of migration increase in the overall urban population growth. This percentage, in view of the declining natural increase in urban areas, will continue to grow. The greater the urban area, the more the percentage of migration balance increases. This applies primarily to population migrations from rural to urban areas, which during 1951–1970 were estimated at between 2.5 and 3.7 million persons (depending upon the source of data).

After reducing these figures by the volume of migration in the opposite direction, which diminishes the above estimates by about 1 million persons, we obtain between 1.5 and 2.7 million persons; these figures determine the increase in urban population due to migration. The balance of population flow between rural areas and urban areas, based on current records, amounts to about 2.3 million persons.

The population flow from rural to urban areas has become a predominant direction of internal population migration in Poland. Since 1967 the migration increase in the urban areas has exceeded, on the average, 50 per cent of the annual urban population increase. The outflow of population from urban to rural areas is declining, and the influx from rural to urban areas has not been very high (especially since 1967). In recent years it has been much smaller, in absolute terms, than in the 1950's (when the main component of urban population growth was natural increase or increases owing to administrative change, as shown in Table 4.6. and Chart. 4.1.). Population flows between the urban areas themselves display a declining tendency. On the whole, the effective flow can be estimated (on the basis of general population censuses) at 3.5 million persons in 1951–1970, assuming that the average annual volume is about 280 thousand persons, with a distinct upward deviation at the beginning of this period. Both the current data on changes in place of residence and the census data indicate that the dominant position in internal migration is occupied by the direction from rural to urban areas (Tables 4.2. and 4.6.). The recorded annual volume of total population flow between urban and rural areas, which has declined from over 600 thousand to about 400 thousand, has now resulted in ever higher migration balances for urban areas, reaching in today's statistics about 170 thousand persons).

TABLE 4.4. COMPONENTS OF ACTUAL INCREASE IN THE URBAN POPULATION OF POLAND AND ITS STRUCTURE AND INTENSITY, 1951–1973

Years	Increase					
	natural		migration-related		due to adminis-trative changes	actual
	percentage of actual[a]	per 1,000 persons	percentage of actual[a]	per 1,000 persons	percentage of actual[a]	per 1,000 persons
1951	19.4	19.2	23.3	23.0	57.3	42.2
1952	53.1	19.3	34.8	12.8	12.1	32.1
1953	66.1	19.8	33.9	10.3	–	30.1
1954	57.4	19.2	27.3	9.4	15.3	28.6
1955	35.1	19.7	8.6	4.7	56.3	24.4
1956	52.6	18.5	11.0	3.7	36.4	22.2
1957	64.8	17.4	12.3	5.6	22.9	23.0
1958	49.0	16.8	14.3	8.2	36.7	25.0
1959	46.8	14.5	29.3	8.7	23.9	23.2
1960	75.7	12.9	24.3	5.3	–	18.2
1961	59.5	11.2	21.0	4.9	19.5	16.1
1962	62.7	9.8	37.3	6.4	–	16.2
1963	56.5	9.4	37.2	6.8	6.3	16.2
1964	55.3	8.5	42.5	7.4	2.2	15.9
1965	53.0	8.0	43.7	7.7	3.3	15.7
1966	51.2	7.4	45.5	7.7	3.3	15.1
1967	45.9	6.7	53.0	8.4	1.1	15.1
1968	46.8	6.6	52.2	8.1	1.0	14.7
1969	45.0	6.4	55.0	8.7	–	15.1
1970	43.7	7.0	56.3	9.5	–	16.5
1971	43.6	6.9	56.4	9.9	–	16.8
1972	47.3	7.9	52.7	9.4	–	17.3
1973	38.4	8.1	44.4	9.3	17.2	17.4

[a]As percentage of actual increase in the absolute quantities for the given year.

In the 1951–1970 period an essential role was played by intra-voivodship population flows from villages to towns. The flow from rural to urban areas amounted in that period to 2.2 million persons, while only 0.7 were involved in inter-voivodship migration, and out of this figure almost 0.5 million centred in cities with voivodship status, (of which Warsaw accounted for as many as 234 thousand persons). It should be stressed that the balance of migration between the urban and rural areas was greater in 1951–1970 than the natural increase in the rural areas. It may be assumed then that the most important cause of increase in the percentage of urban population in the country as a whole was migration from the rural areas.

TABLE 4.5. VOLUME OF POPULATION FLOW BETWEEN RURAL AND URBAN AREAS IN POLAND, 1951–1973

Years	Population flow between rural and urban areas				
	total	from rural to urban areas	from urban to rural areas	balance	
	number in thousands of persons				as percentage of total migration between rural and urban areas
1952	637.4	385.2	252.2	133.0	20.9
1953	603.8	356.3	247.5	108.8	18.0
1954	639.2	370.6	268.6	102.0	16.0
1955	625.6	340.5	285.1	55.4	8.9
1956	600.5	323.2	277.3	45.9	7.6
1957	529.4	300.3	229.1	71.2	13.5
1958	543.0	326.0	217.0	109.0	20.1
1959	587.6	353.2	234.4	118.8	20.2
1960	540.6	307.7	232.9	74.8	13.8
1961	496.7	283.9	212.8	71.1	14.3
1962	432.1	263.7	168.4	95.3	22.1
1963	408.4	255.4	153.0	102.4	25.1
1964	385.4	249.9	135.5	114.4	29.7
1965	382.1	250.9	131.2	119.7	31.3
1966	346.8	234.1	112.7	121.4	35.0
1967	352.1	243.7	108.4	135.3	38.4
1968	364.3	249.3	115.0	134.3	36.9
1969	384.8	265.0	119.8	145.2	37.7
1970	385.1	273.3	111.8	161.5	41.9
1971	383.8	277.6	106.2	171.4	44.7
1972	399.4	282.1	117.3	164.8	41.3
1973	383.2	275.6	107.6	168.0	43.8

After World War II town charters were granted to 150 rural areas. These towns now account for almost 10 per cent of the total urban population. The following voivodships have the greatest number of new towns: Katowice (42), Warsaw (22), Wrocław (15) and Kraków (10). Population increase and decrease and decrease due to migration in the particular voivodships and to migration from rural to urban areas are illustrated in Chart. 4.2, 4.3 and 4.4.

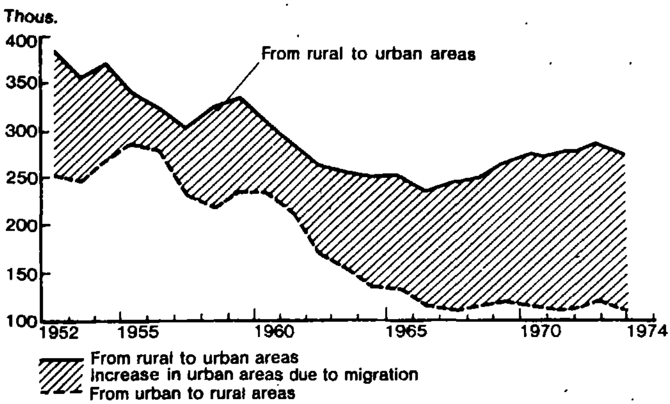


Chart. 4.2. Population flows between urban and rural areas in Poland in 1952–1973

THE AGE AND SEX STRUCTURE OF THE MIGRANT POPULATION

The age structure of migrants always differs according to both the population structure from which they came, and from the population structure which they join. Most of these people (over 50 per cent) are not over 25 years of age. The age pyramid of this population shows the predominance of those in the age group with the greatest ability to work, 60 per cent of all migrants being in the 18–39 years group. The percentage of children of school age in this

TABLE 4.6. INTERNAL POPULATION MIGRATION IN 1951–1970 BY DIRECTIONS

Directions of population flow	Number of persons in millions	
	1951–1960	1961–1970
from rural to urban areas	1.8	1.9
from urban to rural areas	0.6	0.5
from urban to urban areas	2.0	1.5
from rural to rural areas	2.0	1.8
Total	6.4	5.7

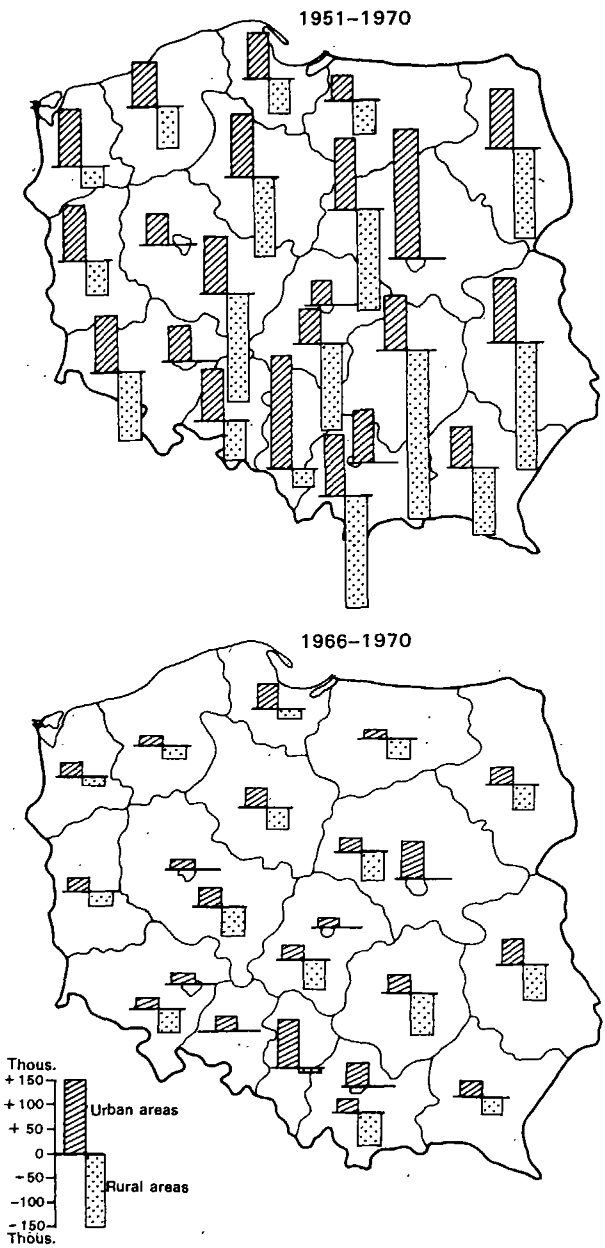
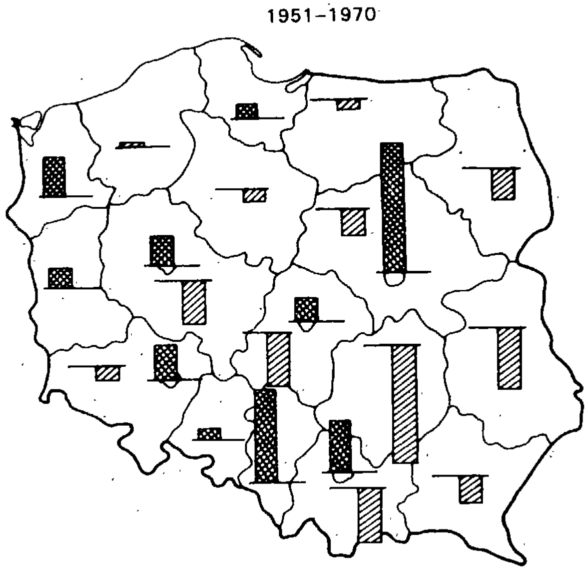


Chart. 4.3. Balance of migration from rural to urban areas



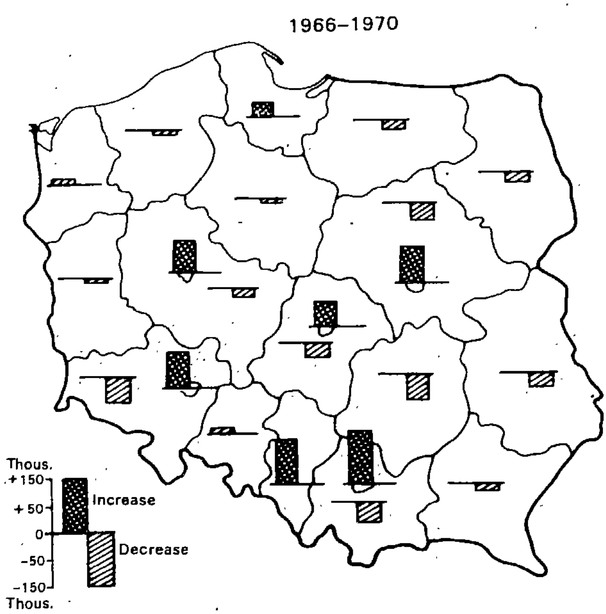


Chart. 4.4. Balance of inter-voivodship migration

group is also fairly large. The amount of older people in the migrant population is much smaller. The corresponding data are shown in Table 4.7. and in Chart. 4.5. With respect to sex structure men predominate; the share of women in the 1951—1973 period was 49.3 per cent. Only in the 1966—1973 period were there more women — almost 52 per cent. Quite substantial differences are observed depending upon the direction and reach of migration. For instance, among the population migrating to urban areas with 100 thousand of more inhabitants, the share of women amounted on the average to 57 per cent, but there were also cases in which it was higher, e.g. about 64 per cent in Wrocław and 77 per cent in Sosnowiec in 1971.

In some voivodships the percentage of native population in the middle age groups is so small that the migrant population may be considered as completely predominant.

In the population group aged 50 years and over the smallest shares of those born in a given voivodship were recorded in 1970 in the following: Szczecin (3.9 per cent), Wrocław (4.8 per cent), and Zielona Góra (9.2 per cent). The same voivodships also had the lowest share of population born in their territories and aged between 26—49 years (Szczecin — 3.9 per cent, Wrocław — 5.1 per cent, Zielona Góra — 7.8 per cent); further down the list were the Koszalin voivodship, with about 9 per cent in the 25—49 years age group and about 12 per cent in the 50 and over group, and the Olsztyn voivodship, with the corresponding figures amounting to 35 and 42 per cent respectively. All cities with separate administrative status and the Katowice, Gdańsk, Opole and Szczecin voivodships have a population of predominantly migrant nature in the youngest age group.

It may be said in general that cities with separate administrative status have an especially high percentage of population born outside their administrative limits (Table 4.9).

TABLE 4.7. POPULATION PARTICIPATING IN INTERNAL MIGRATION IN 1951—1973 BY AGE

Years	Total	Age in years					
		0—17	18—24	25—39	40—49	50—64[a]	65 and over[b]
1951—1955	100.0	28.0	31.4	27.0	6.1	4.3	3.2
1956—1960	100.0	28.7	29.6	27.9	5.3	4.7	3.8
1961—1965	100.0	29.7	26.1	28.9	4.9	5.0	5.4
1965—1970	100.0	27.4	29.0	27.5	5.4	4.2	6.5
1971—1973	100.0	25.3	30.6	27.5	5.6	3.7	7.3
1951—1973	100.0	28.2	29.4	27.7	5.5	4.4	4.8

[a]women aged 50—59 years
[b]women aged 60 years and over

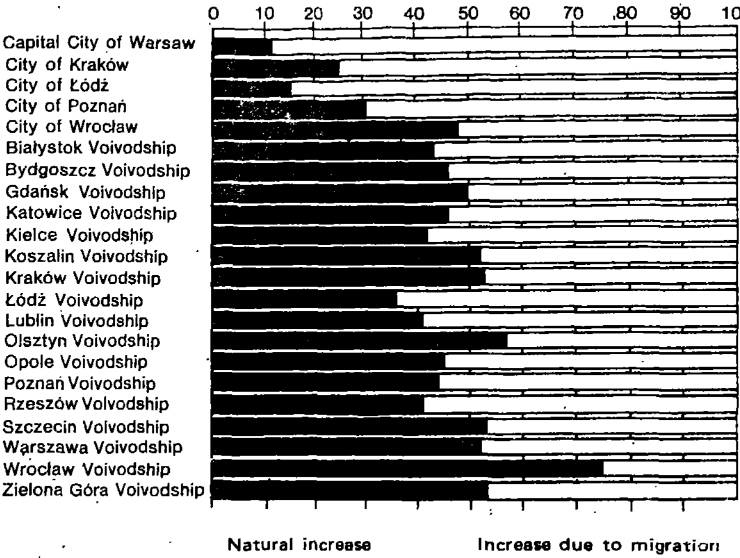


Chart. 4.5. Structure of natural and migration-related increase in urban areas in 1966–70

TABLE 4.8. STRUCTURE AND INTENSITY OF OUTFLOW OF ECONOMICALLY ACTIVE POPULATION FROM AGRICULTURE[a], 1951–1970

Age in years	Outflow structure				Outflow intensity			
	1951–1960		1961–1970		1951–1960		1961–1970	
	Males	Females	Males	Females	Males	Females	Males	Females
	in percentages				per 100 economically active persons in the given age group			
15 and over	100.0	100.0	100.0	100.0	22.6	14.6	20.1	13.7
15–17	2.7	3.0	1.2	1.5	18.5	13.7	9.3	9.8
18–19	7.6	7.7	8.4	6.9	42.1	32.5	33.3	27.4
20–24	41.5	39.8	39.0	45.7	63.4	48.7	50.0	52.9
25–29	31.5	29.7	24.8	24.5	50.9	37.0	52.3	42.8
30–34	3.5	7.8	12.5	2.4	9.2	10.7	30.5	4.8
35–39	3.4	–1.2	3.5	–1.9	9.2	–2.4	9.5	–3.2
40–44	2.3	–0.5	3.4	–0.7	7.9	–0.9	8.2	0.9
45–49	1.7	–	2.5	0.6	5.0	–	6.4	0.8
50–54	1.2	0.8	1.7	1.3	2.9	1.2	5.5	2.3
55–59	0.5	1.9	1.3	2.9	1.3	3.3	3.5	4.4
60–64	0.5	3.6	0.2	4.8	1.7	8.1	0.6	7.3
65–69	1.1	3.2	–0.8	5.4	6.0	11.5	–2.3	10.8
70 and over	2.5	4.2	2.3	6.8	12.7	15.1	6.2	13.2

[a]For the age of 15 years and over; undetermined ages not included.

TABLE 4.9. RATIOS OF NATIVE POPULATION AND IMMIGRANT POPULATION IN 1961–1970 TO THE TOTAL POPULATION RESIDING IN THE VOIVODSHIP IN 1970 BY AGE

Regions Cities with voivodship status and voivodships	Percentage of Total Population[a] in 1970							
	total		up to 25 years		25–49		50 and over	
	A	B	A	B	A	B	A	B
Northern and Western								
City of Wrocław	48.2	22.2	96.9	26.5	1.9	22.5	1.9	10.3
Szczecin	59.5	12.1	97.3	9.7	3.9	17.9	3.9	9.9
Koszalin	66.2	10.5	103.3	8.2	8.6	16.6	11.7	7.6
Wrocław	67.1	9.5	104.0	7.0	5.1	15.8	4.8	9.0
Zielona Góra	68.0	10.9	101.4	7.9	7.8	19.1	9.2	9.9
Gdańsk	74.9	9.0	95.0	8.4	52.3	11.5	52.3	5.8
Olsztyn	76.8	8.2	103.8	6.9	35.3	12.0	42.1	6.1
Opole	85.5	8.9	97.5	8.2	65.7	12.2	81.3	4.9
Old voivodships								
City of Kraków	58.8	20.5	72.6	26.3	46.9	20.2	48.7	7.5
City of Łódź	69.4	7.4	93.2	9.0	55.0	8.4	51.9	3.5
City of Poznań	69.8	15.2	83.6	19.2	69.3	15.7	43.8	6.6
Capital city of Warsaw	72.5	12.0	84.4	13.5	65.3	14.0	47.1	6.4
Katowice	86.9	8.0	89.9	9.8	82.6	9.1	87.6	2.6
Bydgoszcz	108.3	5.3	101.1	5.1	124.5	7.1	102.8	3.1
Białystok	117.6	2.8	106.6	2.8	136.8	4.0	114.6	1.3
Warszawa	119.1	5.4	102.2	5.2	140.5	7.4	124.8	3.1
Lublin	120.6	2.9	106.6	3.1	140.2	3.9	122.1	1.2
Poznań	121.5	4.7	103.7	4.5	141.4	6.8	135.8	2.6
Rzeszów	121.6	3.3	103.0	3.3	140.0	4.6	132.0	1.5
Kraków	122.9	3.7	105.1	3.6	144.2	5.2	131.5	1.7
Łódź	127.5	3.9	105.7	4.1	152.7	5.3	136.3	1.9
Kielce	131.8	3.0	110.2	3.0	161.5	4.3	135.9	1.2
Western and Northern voivodships	70.1	10.4	100.3	8.8	26.3	15.0	31.5	7.5
Remaining voivodships	109.3	5.8	99.9	6.2	120.8	7.4	112.8	2.6
Poland	100.0	6.9	100.0	6.9	100.0	9.0	100.0	3.4

[a] A – those born in a given territory.
B – those who arrived on the given territory from 1961–1970.

Especially interesting are the data shown in Table 8. The figures indicate a great intensity of population outflow from agriculture in the productive age group. Most strongly affected by this outflow are the 20–24 and 25–29 year groups. This outflow was greater in the 1960's than in the 1970's, which may indicate that the reserves of manpower in the rural areas are being exhausted.

In recent years a slight weakening in the intensity of migration between western and norther voivodships and the remaining voivodships has been noticeable. The prominently immigrant character of the north-western region is being changed under the influence of the demographic bulge, which was a general national phenomenon. Manpower resources are now moving where there is special demand for them, and the new distribution of manpower resources is determining the internal migration of the younger generation.

THE MAIN CAUSES OF CONTEMPORARY INTERNAL MIGRATION

If we analyze population increases in the 1960–1970 period according to their territorial distribution, we note that in the general increase, amounting to 2.8 million persons (9.4 per cent), the urban population participated to the extent of 2.6 million persons, of which 1.6 million were in the areas included in urban agglomerations. The overall population increase in agglomerate areas amounted to 1.8 million. The population increase in the non-agglomerate areas was smaller by almost one half. In the Katowice agglomeration, for instance, the increase amounted to almost 400 thousand, and in the Warsaw agglomeration – almost 200 thousand persons. These increases were mostly the result of immigration processes. The share of the two agglomerations mentioned above amounted to 23 per cent of the total national increase, whereas they occupy only 2.5 per cent of the areas of the country. About 65 per cent of the total population increase was centred in these areas which amount to 9 per cent of the total area of the country. It can be said, therefore, that the main causes of internal population migration in Poland are urbanization processes (Chart. 4.6. and 4.7).

The concentration of migration in the areas already urbanized displays the following pattern: from 1966–1971 the urban areas with 100 thousand and more inhabitants absorbed 42 per cent of the total migration increase in urban areas, and in 1971 the migration increase in Warsaw amounted to 94 per cent of the actual increase, in Katowice – 74 per cent, in Kraków and Poznań – 75 per cent each, in Łódź – 91 per cent and in Kielce – 73 per cent. The structure of migration increase by size of town is illustrated in Table 4.10.

It follows from the figures shown in Table 4.10 that there are considerable differences in the origin of the migrants depending upon the size of the town. We find, for instance, that in migration from town to town preference is given to large

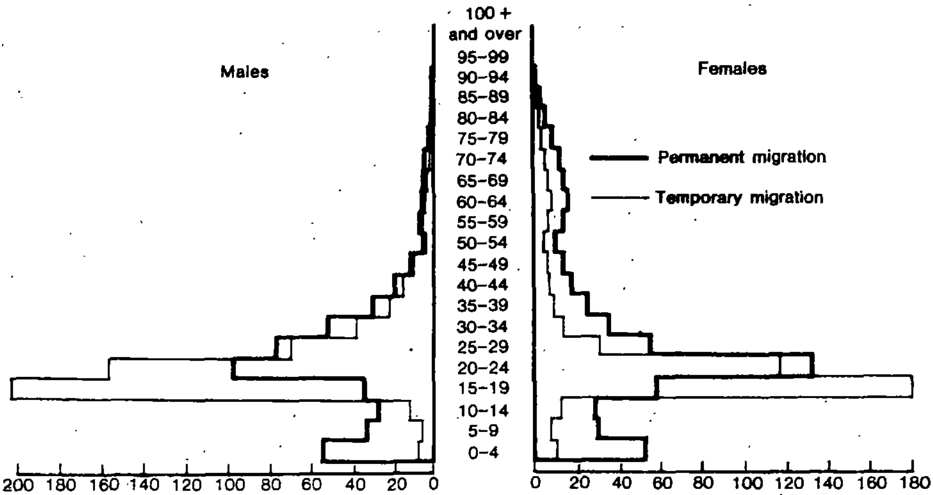


Chart. 4.6. Migration by sex and age per 1.000 population in 1969–70

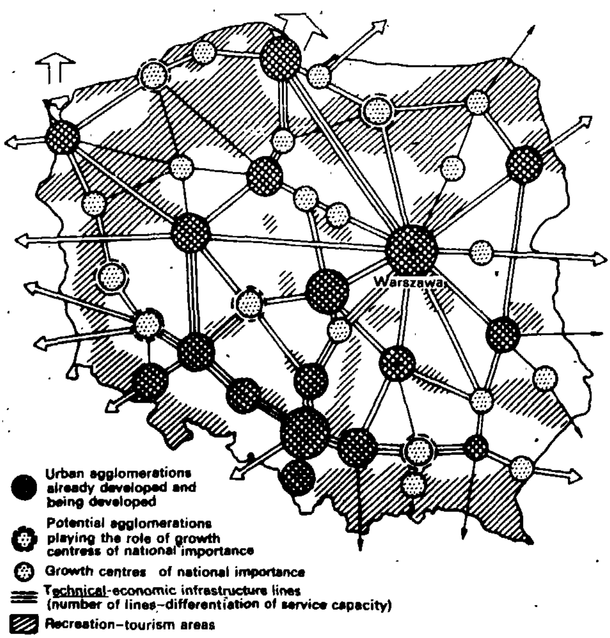


Chart. 4.7. Planned settlement system of policentric moderate concentration of population in Poland

TABLE 4.10. POPULATION INCREASE IN URBAN AREAS DUE TO MIGRATION IN 1966–1971 BY SIZE OF TOWN AND DIRECTION OF MIGRATION

Number of inhabitants in thousands	Increase due to migration in thousands			Structure of increase	
	total	from rural areas	from urban areas	total	from rural areas
up to 5	19.4	56.2	–36.8	2.2	6.5
5–10	63.7	108.9	–45.2	7.3	12.5
10–20	140.8	177.2	–36.4	16.2	20.4
20–50	176.1	179.7	–3.6	20.3	20.7
50–100	102.0	91.7	10.3	11.7	10.6
100 and over	366.7	242.9	123.8	42.2	27.9
settlements	0.4	12.5	–12.1	0.1	1.4
Total	869.1	869.1	+134.1	100.0	100.0

urban centres with more than 50 thousand inhabitants, and the share in immigration to urban areas increases with the size of the town. Towns with over 100 thousand inhabitants accounted for almost one third of the total migration increase in 1966–1971. The reason for this is, on the one hand, the low demographic vitality of big cities, characterized by contracted population reproduction, and on the other hand the tremendous demand for manpower resources for the developed technical infrastructure of the towns.

Also worth noting is the high degree of feminization of the migrant population, as evidenced by the fact that in the 1966–1970 period there were 131 women per 100 men among the immigrants to urban areas, and 144 women among immigrants to towns with a population of 100 thousand and over.

On the basis of a special national inquiry into the causes of internal migration, conducted in 1974 by the Gentral Statistical Office, it can be said that in big cities with separate administrative status the main causes of influx are socio-demographic considerations, which include: marriage, the care of members of the family, or the accompanying of sponse, parents or guardians. These causes were quoted by 47 per cent of all immigrants, and in Poznań and Łódź – by as many as 54 per cent. Another cause of migration to towns with separate administrative status was flat allocation (26 per cent), in third place was work – a change of place of work or the undertaking of first employment (21 per cent).

Throughout the country as a whole the structure of migration by the three main causes mentioned above was somewhat different. Also predominant were the caused related to marriage or the accompanying of parents, children or quardians who were changing their place of permanent residence, but these were quoted as main causes only by 38 per cent of all persons under investigation. Occupational work as the main cause for change of residence was given by 31 per cent, and causes related to changing flats were quoted by 27 per cent.

Also worth noting are considerable differences in the proportions discussed above as related to population distribution. The percentage of persons giving as a reason for migration the first of the above-mentioned causes related to the set of socio-demographic characteristic, fluctuated between 30 per cent for the Opole voivodship and 46 per cent for the Kraków voivodship; the percentage of persons giving the second cause – related to occupational work, – fluctuated between 19 per cent for the Katowice voivodship and 40 per cent for Olsztyn; the percentage of persons giving the third cause fluctuated between 19 per cent for the Białystok voivodship and 39 per cent for Katowice.

It is interesting that the smallest migration movement caused by change of place of work is found in two voivodships which are among the most industrialized ones: these are Katowice (9 per cent) Łódź (8 per cent). If we investigate this movement in the country, as a whole, it turns out that 44 per cent of migrants move from the central and south eastern voivodships because of changes in the place of work, while only 35 per cent move in the opposite direction. Within the central and south-eastern voivodships people change their place of residence primarily for socio-demographic reasons (40 per cent), and then because of change in the place of work (28 per cent).

It should also be stressed that the causes of internal migration now being observed (1974) cannot be regarded as being equally intensive in the past. For the past was marked by the demographic boom and all its consequences, which played an important role in the migration movement. In line with the progress at that time the share of the „boom" generations in migration increased to its present 50 per cent of all internal population migrations throughout the country.

It is expected that in the 1980's this figure will even be exceeded, and that the balance will reach about 250 thousand persons. These assumptions are reflected in forecasts and in the general premises of the spatial development plan of the country. Problems related to the inflow and outflow of population are also reflected in regional plans.

The modernization and development of towns and settlements envisaged in the plans, will be geared to the prevailing demographic situation.

Production investment and the social infrastructure are to take into consideration the progressing concentration of population. The development of urbanization and industrialization so far has only been slightly influenced by the planned shaping of the intensity and directions of internal migration. This situation must change in order to take better advantage of concentrated capital assets by directing manpower resources where they are most urgently needed and where they can be put to the best use. This will be necessary, all the more so in that the demographic situation in towns is changing for the worse, i.e. the natural increase is steadily declining.

Therefore, population increase in the urban areas must be two thirds covered by migration from the rural areas. The volume of this immigration will limit the pace of urbanization. It can be seen, therefore, that control over the migration process is non now assuming considerable importance and is related to the postulated changes in the direction of population flow.

TABLE 4.11. INTERNAL POPULATION MIGRATION IN 1952–1973

Years	Inflow[a]			Outflow[b]			Balance of migrations	
	total	urban areas	rural areas	total	urban areas	rural areas	urban areas	rural areas
	in thousands of persons							
1952	1,386.2	753.6	632.6	1,386.2	620.6	765.6	+133.0	–133.0
1953	1,348.6	746.3	602.3	1,348.6	637.5	711.1	+108.8	–108.8
1954	1,458.7	786.1	672.6	1,458.7	684.1	774.6	+102.0	–102.0
1955	1,440.0	737.5	702.5	1,440.0	682.1	757.9	+55.4	–55.4
1956	1,444.2	694.0	750.2	1,444.2	648.1	796.1	+45.9	–45.9
1957	1,321.9	607.7	714.2	1,321.9	536.5	785.4	+71.2	–71.2
1958	1,323.4	622.2	701.2	1,323.4	513.2	810.2	+109.0	–109.0
1959	1,372.0	652.2	719.8	1,372.0	533.4	838.6	+118.8	–118.8
1960	1,256.2	592.4	663.8	1,256.2	517.6	738.6	+74.8	–74.8
1961	1,162.5	542.2	620.3	1,162.5	471.1	691.4	+71.1	–71.1
1962	1,034.1	499.1	535.0	1,034.1	403.8	630.3	+95.3	–95.3
1963	986.7	472.6	514.1	986.7	370.2	616.5	+102.4	–102.4
1964	932.9	462.6	470.3	932.9	348.2	584.7	+114.4	–114.4
1965	914.5	456.0	458.5	914.5	336.3	578.2	+119.7	–119.7
1966	840.3	419.9	420.4	840.3	298.5	541.8	+121.4	–121.4
1967	842.1	430.1	412.0	842.1	294.8	547.3	+135.3	–135.3
1968	861.5	437.2	424.3	861.5	302.9	558.6	+134.3	–134.3
1969	898.5	455.8	442.7	898.5	310.6	587.9	+145.2	–145.2
1970	881.9	469.4	412.5	881.9	307.9	574.0	+161.5	–161.5
1971	874.8	474.4	400.4	874.8	303.0	571.8	+171.4	–171.4
1972	895.2	483.6	411.6	895.2	318.8	576.4	+164.8	–164.8
1973	839.4	468.1	371.3	839.4	300.1	539.3	+168.0	–168.0

[a] Registrations of permanent residence.
[b] Cancellations of permanent residence registration.

This kind of attitude finds support in an analysis of – the distribution of manpower resources. Potential agglomerations are envisaged, and agglomerations now developing are being strengthened in order to achieve in the future a moderate degree of population concentration. Nevertheless, it is necessary to take into consideration the fact that the big agglomerations already in existence will continue to absorb a tremendous portion of the migration increase, in spite of the fact that the strategy of the plan assumes the shifting of urbanization and industrialization from the South to the North and to the East of the country, together with the strengthening of the control region. This will result in a considerable increase in employment outside agriculture in typically agricultural voivodships (Table 4.14) and in an intensive population flow from rural to urban areas.

In the projections for 1975–2000 the assumed balance of migration from rural

to urban areas is about 5.8 – 6.5 million persons, and the numerical increase in the urban population due to migration will amount to about 250 thousand persons per annum. The problem of control over migration thus assumes special importance in the period in which the country enters a stage of basic structural transformations. In view of the negligible increases in available labour resources from 1981–1990 it is argued that the maximization of population flow from agriculture to non-agricultural sectors is necessary. It should be kept in mind, too, that the character of some voivodships will change – population outflow may turn into population inflow (e.g. the Lublin voivodship, where new mining investments are being planned). The intraregional population flow from village to town within the urban agglomerations themselves will not weaken either. Changes in the expected probable distribution of demographic potential in quantitative terms are shown intensity of change and transformation in the structure of the national economy and of society itself.

TABLE 4.12. CHANGES IN POPULATION DISTRIBUTION IN POLAND UP TO THE YEAR 2000 BY VOIVODSHIPS

Voivodships, including cities with v. status	Population in thousands in:						Urban population				
	1970		1990[a]		2000[b]		percentage of total			1990	2000
	urban areas	rural areas	urban areas	rural areas	urban areas	rural areas	1970	1990	2000	1970 = 100	
Poland-total	17,088.6	15,569.5	24,768.7	12,351.0	28,543.4	9,591.3	52.3	66.7	74.9	144.9	167.0
Bydgoszcz	971.7	943.4	1,415.0	799.6	1,639.0	656.7	50.7	63.9	71.4	145.6	168.7
Białystok	437.9	737.8	725.7	524.5	889.2	364.5	37.2	58.1	70.9	165.7	203.1
Gdańsk	1,022.3	477.0	1,492.6	397.7	1,698.0	342.6	69.6	79.0	83.2	146.0	166.1
Katowice	2,841.5	859.9	3,717.6	761.1	4,073.3	687.7	76.8	83.0	85.6	130.8	143.4
Kielce	616.8	1,273.5	1,039.1	878.8	1,281.3	576.0	32.6	53.7	69.0	168.5	207.7
Koszalin	394.6	401.2	618.9	373.5	745.9	311.9	49.6	62.4	70.5	156.8	189.0
Kraków[a]	1,253.3	1,519.4	1,924.8	1,208.0	2,249.4	975.3	45.2	61.4	69.8	153.6	179.5
Lublin	596.6	1,328.7	1,007.4	987.0	1,223.9	706.4	31.0	50.5	63.4	168.9	205.2
Łódź	1,358.9	1,073.4	1,735.6	791.3	1,911.4	551.3	55.9	68.7	77.6	127.7	140.7
Olsztyn	402.4	577.3	617.0	494.0	747.7	410.0	41.1	55.5	64.5	153.3	185.8
Opole	451.4	607.7	728.1	536.0	900.0	462.1	42.6	57.6	66.1	161.3	199.4
Poznań	1,340.2	1,324.3	1,886.8	1,105.2	2,159.8	908.5	50.3	63.1	70.4	140.8	161.2
Rzeszów	485.0	1,273.2	881.2	1,003.3	1,072.6	769.8	27.6	46.8	58.1	181.7	221.2
Szczecin	598.6	300.0	902.1	247.5	1,063.1	163.8	66.6	78.5	86.7	150.7	177.6
Warszawa	2,212.6	1,620.7	3,116.1	1,210.2	3,523.2	903.1	57.7	72.0	79.6	140.8	159.2
Wrocław	1,624.8	877.6	2,219.4	702.3	2,489.8	550.8	64.9	76.0	81.9	136.6	153.2
Zielona Góra	480.0	404.4	741.3	331.0	873.6	250.0	54.3	69.1	77.8	154.4	182.0

[a] Including administratively independent cities with voivodship status.
[b] According to post migration projection.

TABLE 4.13. BALANCES OF INTERNAL MIGRATION BETWEEN URBAN AND RURAL AREAS IN POLAND IN 1951–1973 AND 1976–2000 BY VOIVODSHIP

in thousands

Voivodships	1951–1955	1956–1960	1961–1965	1966–1970	1971–1973	1976–1980	1981–1990	1991–2000
	Urban areas							
Poland	628.3	419.7	502.9	697.7	504.2	1210.8	2748.0	2515.0
Capital City of Warszawa	88.6	16.8	63.6	65.3	56.9	100.8	213.0	190.0
City of Kraków	40.5	2.9	11.0	40.1	21.8	40.0	85.0	75.0
City of Łódź	15.3	1.1	9.3	16.4	14.9	35.0	77.0	65.0
City of Poznań	29.7	2.3	5.5	16.5	15.1	35.0	79.0	75.0
City of Wrocław	16.6	14.4	14.0	18.6	11.2	30.0	69.0	80.0
Białystok	31.1	28.3	18.5	30.0	18.4	40.0	93.0	90.0
Bydgoszcz	27.6	29.9	24.6	36.6	27.9	70.0	155.0	145.0
Gdańsk	5.1	9.5	24.7	43.9	32.4	66.0	145.0	130.0
Katowice	71.7	1.8	48.8	86.7	70.3	120.0	313.0	230.0
Kielce	22.0	23.1	20.0	33.1	26.1	70.0	151.0	160.0
Koszalin	27.0	17.8	17.5	19.5	14.8	30.3	67.0	75.0
Kraków	41.1	25.3	20.9	26.6	15.5	64.0	145.0	135.0
Lublin	17.6	23.6	26.3	46.7	24.5	65.0	140.0	125.0
Łódź	7.1	21.6	13.1	24.3	14.5	40.0	90.0	95.0
Olsztyn	21.6	1.7	4.7	15.6	12.9	37.0	85.0	85.0
Opole	13.6	30.4	23.7	25.8	15.4	48.0	117.0	115.0
Poznań	22.5	23.3	32.8	37.3	22.5	55.0	125.0	115.0
Rzeszów	25.3	12.7	11.7	25.1	22.2	70.0	140.0	110.0
Szczecin	25.6	28.6	30.4	24.1	14.2	40.0	91.0	95.0
Warszawa	33.4	43.7	28.3	26.3	24.8	80.0	200.0	165.0
Wrocław	12.0	32.2	38.3	17.1	13.4	40.0	89.0	85.0
Zielona Góra	33.3	28.7	15.2	22.1	14.5	35.0	79.0	75.0

	Rural areas							
Poland	–628.3	–419.7	–502.9	–697.7	–504.2	–1210.8	–2748.0	–2515.0
Capital City of Warszawa	x	x	x	x	x	x	x	x
City of Kraków	x	x	x	x	x	x	x	x
City of Łódź	x	x	x	x	x	x	x	x
City of Poznań	x	x	x	x	x	x	x	x
City of Wrocław	x	x	x	x	x	x	x	x
Białystok	–48.1	–35.4	–32.9	–48.6	–33.9	–58.0	–139.0	–125.0
Bydgoszcz	–57.4	–18.7	–26.4	–38.7	–32.2	–70.0	–173.0	–155.0
Gdańsk	–14.3	–14.8	–10.4	–20.9	–15.6	–38.5	–85.0	–76.0
Katowice	–18.5	–2.6	– 6.0	–8.0	–8.3	–35.0	–95.0	–86.0
Kielce	–95.9	–70.0	–73.9	–75.0	–50.7	–113.5	–240.0	–220.0
Koszalin	–14.7	–16.4	–21.6	–24.5	–17.4	–30.0	–67.0	–75.0
Kraków	–64.0	–32.2	–48.1	–61.1	–36.8	–114.0	–265.0	–227.0
Lublin	–65.2	–44.9	–52.9	–69.7	–43.4	–95.0	–215.0	–203.0
Łódź	–62.5	–13.1	–34.2	–51.2	–35.9	–85.0	–188.0	–185.0
Olsztyn	+11.9	–21.7	–19.4	–32.8	–23.8	–52.0	–115.0	–105.0
Opole	–23.5	–15.7	–11.2	–21.5	–12.3	–36.0	–85.0	–85.0
Poznań	–86.1	–16.1	–40.4	–52.8	–41.1	–95.0	–218.0	–200.0
Rzeszów	–45.4	–18.8	–20.9	–36.3	–27.8	–100.0	–242.0	–219.0
Szczecin	+ 5.9	–13.7	–12.5	–17.1	–9.9	–28.0	–69.0	–75.0
Warszawa	–40.9	–37.4	–46.3	–55.9	–57.6	–150.8	–310.0	–267.0
Wrocław	–10.3	–26.6	–30.9	–57.8	–39.9	–75.0	–163.0	–137.0
Zielona Góra	+0.7	–21.0	–14.9	–25.8	–17.6	–35.0	–79.0	–75.0

TABLE 4.14. FORECAST OF CHANGES IN THE EMPLOYMENT STRUCTURE IN POLAND IN 1970–1990 BY VOIVODSHIPS

Voivodships, including cities with voivodship status	Percentage of employment outside agriculture in		Employment				Percentage of employment in sectors:			
			in agriculture per 100 ha. of arable land		outside agriculture per 1,000 inhabitants		1970		1990	
	1970	1990	1970	1990	1970	1990	I	III	I	III
Białystok	40	67–73	26	14–17	220	370–400	64	20	34–28	36–39
Bydgoszcz	57	77–82	26	16–20	250	400–430	44	24	25–19	40–41
Gdańsk	77	90–92	23	14–17	330	460–470	26	37	11– 9	42–48
Katowice	89	95–96	36	16–24	420	490–500	29	27	18–17	36–40
Kielce	44	73–81	42	16–22	230	380–420	58	16	29–21	35–39
Koszalin	63	78–84	16	10–14	300	410–440	44	32	24–18	43–47
Kraków	63	83–87	55	24–30	330	430–450	44	25	22–18	42–43
Lublin	37	63–69	40	20–24	220	330–360	66	19	38–34	33–39
Łódź	65	81–85	37	16–20	350	420–440	39	24	21–17	33–40
Olsztyn	49	68–75	18	14–18	210	350–380	53	28	33–26	37–40
Opole	65	81–85	28	16–21	290	410–430	38	25	21–17	39–40
Poznań	59	81–84	27	15–17	260	410–420	43	28	21–18	39–40
Rzeszów	46	75–80	49	20–25	250	390–410	59	18	28–22	35–39
Szczecin	73	85–89	18	11–15	350	480–510	33	31	18–15	40–45
Warszawa	63	85–87	33	16–19	310	440–450	37	35	16–13	48–53
Wrocław	76	87–89	24	15–18	350	450–460	30	30	18–16	36–41
Zielona Góra	67	83–85	22	14–16	320	430–440	38	28	20–18	35–40
Poland	61	80	31	19	306	421	43	26	23	39

Chapter V

THE LABOUR FORCE

The political and social transformations which have taken place in Poland since World War II have ensured social and occupational advancement for broad population strata, and full and rational employment for the productive age population. Employment policy was faced with the task of including in the labour process the reserves of manpower in towns and eliminating agricultural overpopulation in the rural areas. This task was extremely difficult, considering, among other factors, the country's historical heritage. Poland in the inter-war period, being an agricultural country, had insuficient resources of production capital as compared with the available manpower, which was, therefore, chronically underemployed. This situation deteriorated even further in consequence of the tremendous losses suffered during World War II, both in human production potential, and in national capital assets.

The losses in national capital assets due to war destruction amounted to: in industry – 33 per cent, in agriculture – 35 per cent, in transportation – 50 per cent, in commerce – 65 per cent, in health service facilities – 55 per cent, in schools and scientific institutions – 60 per cent[1]. These losses resulted in a tremendous decline in the number of jobs available. Moreover, human resources had been reduced in consequence of the extermination of over six million people. The remaining population was biologically weakened because of a general deterioration in the health of society caused by living conditions during the occupation. Poland entered the period of post-war reconstruction and industrialization with a severe shortage of skilled workers. After the war ended there were throughout the whole country only 35–40 thousand persons with university education and 100 – 120 thousand with secondary education. A noteworthy achievement in this period was the elimination of illiteracy. In the reconstruction period the process of acquiring qualifications after obtaining employment was a common phenomenon among working people. The socio-economic adaptation of the western and northern territories and their integration with the whole country required the reconstruction of the production potential of these territories and considerable translocations of manpower.

In the first year of the Economic Reconstruction Plan (1947–1949) the number

[1]K. Secomski, *Analiza wykonania planu trzyletniego (An Analysis of the Fulfilment of the Three-Year Plan)*, Warszawa 1950, p. 12.

of those economically active in the national economy is estimated at around 11.7 million persons, of which only about 2.5 million were employed outside agriculture. The implementation of the Plan did not cause any significant increase in the number of economically active persons, but the number of those employed in the socialized sector increased considerably, from 2,510 thousand in 1946 to 3,960 thousand in 1949. Also the number of people employed outside agriculture increased considerably, while employment in agriculture declined.

LABOUR RESOURCES IN 1950–1970

The pattern of labour resources in the 1950–1970 period was influenced by:

– changes in the numerical level and structure of the population over 15 years of age;

– changes in the level of the population's economic activity.

Of basic importance regarding the amount of manpower supply in 1950–1970 were changes in the structure of the productive age population. Considerable influence on the volume of labour resources was also exerted by changes in the level of the population's economic activity.

In 1951–1970 the increase in the productive age population amounted to over 26 per cent; but the rates of increase in the individual five year periods differed. These differences were primarily a result of the two world wars and of the changing level of population reproduction in Poland (Table 1).

TABLE 5.1. PRODUCTIVE AGE POPULATION 1950–1970

Years	Productive age population [a]						
	Number			Years	Increase		
	Total	Males	Females		Total	Males	Females
	in thousands						
1950	14,481	6,973	7,508	1951–1955	1,227	617	610
1955	15,608	7,590	8,018	1956–1960	663	482	181
1960	16,271	8,072	8,199	1961–1965	787	486	301
1965	17,058	8,558	8,500	1966–1970	1,266	737	529
1970	18,324	9,295	9,029				
				1951–1970	3,943	2,322	1,621

[a] males 18–64 years, females 18–59 years

In this twenty year period (1951–1970) the increase in productive age population amounted to over 3.9 million persons. Only in very few European countries was the increase in manpower resources equally dynamic.

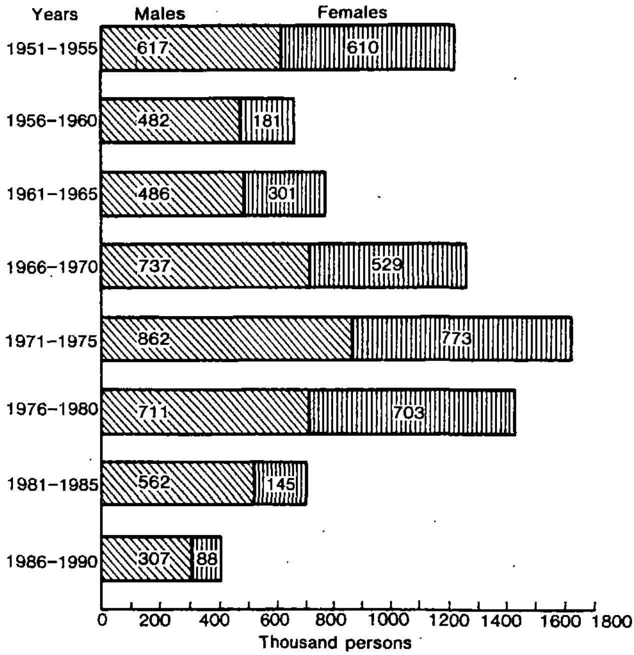


Chart. 5.1. Increase in the productive age population 1950–1990 (in thous.)

In consequence of socio-structural transformations – and especially the rise in the level of education of the population, better possibilities of obtaining employment, the socio-occupational advancement of women – various changes in the level of economic activity by sex, age, the nature of the place of residence (town – village) and the source of income (agriculture, outside agriculture) took place in the years 1950–1973.

A characteristic feature of changes in economic activity by sex is, on the one hand, the dynamic increase in the economic activities of women in the 25–29 age group, and, on the other hand, a considerable decline in this activity rates in the 15–19 age group. Fluctuations in the level of the economic activity of men were much smaller. The process of steady decline in the economic activity of younger age groups is related to the development of education in Poland and, in consequence, to an increasing percentage of young people attending secondary schools and universities. The extension (since 1966) of learning in elementary schools by one year has also contributed to this trend.

In considering the problem of changes in the level of economic activity of the population from the point of view of the socio-occupational structure, it is worth noting that an increase in the economic activity of women was particularly high among those deriving their livelihood from nonagricultural occupations.

TABLE 5.2. CHANGES IN THE LEVEL OF ECONOMIC ACTIVITY OF THE POPULATION FROM 1950–1960–1970–1973

Age	Number of economically active persons per 1,000 persons at a given age in years:							
	1950		1960		1970		1973	
	males	females	males	females	males	females	males	females
14	159	175	47	65	–	–	–	–
15	340	333	127	144	37	46	38	34
16	487	463	286	275	89	83	89	76
17	593	578	466	412	204	180	234	221
18	691	673	668	560	539	375	561	412
19	765	707	792	672	732	613	681	584
15–19	575	553	465	412	314	256	317	263
20–24	862	678	881	678	857	733	875	745
25–29	952	608	964	628	963	751	973	798
30–34	974	616	972	634	971	777	976	800
35–39	979	629	971	669	968	798	969	823
40–44	980	641	969	692	961	800	959	816
45–49	977	637	961	683	951	792	939	790
50–54	963	604	948	656	940	759	916	744
55–59	940	550	914	602	909	681	873	647
60–64			819	489	830	511	762	440
65–69	714	353	650_{644}	391_{369}	636_{666}	425_{390}	533_{562}	342_{311}
70+			478	240	500	268	388	199

A characteristic feature of changes in the level of economic activity by social groups in the years 1950–1973 is that up to the age of 24 years the decline in economic activity of the agricultural population was higher than that of the nonagricultural population. Also noticeable is a high level of economic activity by the post-productive age population in agriculture, indicating a relatively fast further growth. This is related to the existence of a family-type private farming in the rural areas and the lack of universal old age insurance in this population category.

An evaluation of the process of change in the level of economic activity of women from 1950–1973 leads to the conclusion that the economic activation of women was not motivated by financial considerations only, but has become a process with permanent trends resulting from profound socio-structural transformations and the enhancement of the role of women in the sociooccupational life of Poland. The equality of rights of the two sexes, guaranteed by the constitution, has enabled women to gain qualifications, so that they can work in all occupations and perform responsible professional functions. An element conductive

to taking advantage of these possibilities was the process of providing ever more favourable conditions for women to enable them to reconcile their family and occupational duties.

Women in nonagricultural households were a basic source of additional activation of labour reserves. This process of activation was particularly strong in 1961–1970. The economic activity rates for women in the 25–29 year age group *in 1951–1970 increased more rapidly in towns (an increase of 72 per cent), than in* the rural areas (an increase of 12 per cent).

The figures shown in Table 5.3 indicate to what extent the increase in manpower resources was influenced by changes in the age structure of the population, in the level of its economic activity and the population migration from rural to urban areas. Each of these factors influenced the situation to a certain specific degree.

TABLE 5.3. INCREASE IN MANPOWER RESOURCES IN 1961–1970 AND FACTORS INFLUENCING THIS INCREASE

Particulars	Increase in manpower resources 1961–1970								
	in millions of persons								
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Increase in manpower resources (items 1+2+3) of which to	2.9	1.2	1.7	2.1	0.8	1.3	0.8	0.4	0.4
1) changes in the age structure	2.6	1.6	1.0	0.9	0.6	0.3	1.7	1.0	0.7
2) changes in activity rates	0.7	−0.2	0.9	0.6	−0.1	0.7	0.1	−0.1	0.2
3) population migrations, administrative changes (urban-rural)	−0.4	−0.2	−0.2	0.6	0.3	0.3	−1.0	−0.5	−0.5

The factors which contributed most strongly to the increase in total manpower resources were changes in the level and structure of the population in the age group below 15 years. Other important factors were changes in the level of economic activity of the population, in consequence of which the supply of labour increased by about 0.7 million persons, i.e. by almost one fourth of the total increase in manpower resources in Poland in the years 1961–1970. In the urban areas, on the other hand, one half of the increase in female labour resources grew from the rise in economic activity. In the urban areas married women were particularly active (an increase by 58 per cent during 1961–1970), while the increase in the activity rate of single women was much smaller (only 5 per cent).

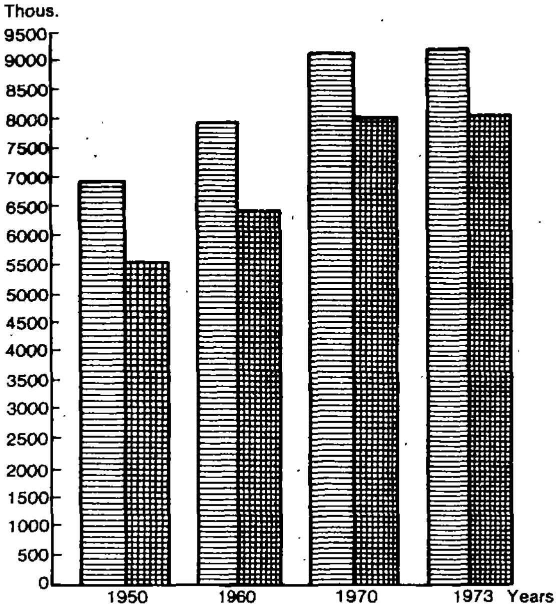


Chart. 5.2. Economically active population in the national economy by sex, 1950–1973.

MANPOWER RESOURCES IN 1971–1990

Changes in the number and structure of the productive age population for the years 1971–1990 have already been determined by the natural population growth in Poland so far. A synthetic picture of the productive age population increase (18–59/64 years) in individual calendar years for the 1971–1990 period is presented in Table 5.4.

A considerable deceleration in productive age population increase will begin in Poland as early as 1979. The greatest increase will occur in the years 1971–1980. This will be the highest gain in this population category in Poland in the post-war period, and will not be repeated until the end of this century. The years 1981–1990 will be marked by a low increase in productive age population, and this will be most noticeable in the five–year period from 1986 to 1990.

The level and rate of change in the economic activity of a population can be influenced. Social and educational policy in Poland will exert considerable influence on this process of change. The growing qualifications of women, the desire to provide for old age (disability and retirement pensions), may be regarded as basic factors in forecasting a further moderate increase in the economic activities of women of productive age up to the year 1990.

TABLE 5.4. EXPECTED CHANGES IN POPULATION IN THE 18–59/64 YEAR AGE GROUP UP TO 1990

Years	Number of persons reaching the age of 18 years	Number of persons reaching the age of: 65 years-males, 60 years-females	Natural population decrease in the 18–59/64 year age group (deaths)	Natural population increase in the 18–59/64 year age group columns 2–3–4
	in thousands			
1971	693.0	309.8	71.5	311.7
1972	696.1	324.4	66.9	304.8
1973	717.9	286.4	88.1	343.2
1974	701.2	291.8	89.7	319.7
1975	703.9	257.9	90.7	355.3
1971–1975	3512.1	1470.5	406.9	1634.7
1976	689.9	235.9	86.4	367.6
1977	653.3	232.3	91.7	329.3
1978	619.2	227.8	87.0	304.4
1979	572.4	263.4	91.7	217.3
1980	549.7	257.4	96.5	195.8
1976–1980	3084.5	1216.8	453.3	1414.4
1981	541.0	247.3	76.3	217.4
1982	526.3	273.3	78.1	174.9
1983	511.8	279.1	85.3	147.4
1984	499.1	310.8	81.8	106.5
1985	494.1	344.2	89.1	60.8
1981–1985	2572.3	1454.7	410.6	707.0
1986	500.9	327.5	83.1	90.3
1987	494.6	340.2	87.2	67.2
1988	529.2	356.9	85.6	86.7
1989	535.2	356.1	83.4	95.7
1990	529.7	382.7	91.3	55.7
1986–1990	2589.6	1763.4	430.6	395.6
1971–1980	6596.6	2687.3	860.2	3049.1
1981–1990	5161.9	3218.1	841.2	1102.6
1971–1990	11758.5	5905.4	1701.4	4151.7

Changes which are to take place in the educational system, measures of social and legal type concerning nonworking women who bring up children. or working women who intend to interrupt work for a certain period of time in order to bring up a small child (leaves without pay or with pay for taking care of children), a more elastic retirement system (the possibility to retire earlier is envisaged, from the middle of 1975, for women and invalids who meet certain requirements), the extension of old age pensions to cover the population in general and rural population migrations (whose family activity rates are traditionally higher) to the urban

areas, may, in turn, be regarded as factors which will lower the level of economic activity to the year 1990.

During 1971–1975 the process of changes in the level of economic activities runs basically in an analogous way as in 1961–1970 (compare Table 5.2).

Special preferences for employing women in the early 1970's a dynamic rate of economic development, a rapid increase in the average wage – these are only some of the more important instruments for stimulating the process of further increase in the economic activities of women.

The current decade (1971–1980), like the previous one, will still be marked by the domination of factors which stimulate economic activity over factors which lower this activity; this will result in an increase in the supply of labour from this source.

It is expected that in the decade 1981–1990 the activity rate for the 15–24 year age group will decline considerably in consequence on the one hand, of the number of this population group being lower and, on the other, of extending secondary education to comprise all young people and increasing considerably the percentage of young people in schools of higher learning.

In view of probable significant changes in the agrarian structure of agriculture and a shift of a substantial part of the economically active population from agriculture to nonagricultural occupations, it is envisaged that the activity rates will decline for those population groups which change their source of income with or without changing their place of residence. This will apply primarily to persons on the borderline between the productive and post-productive age groups.

In contrast to the current decade, the years 1981–1990 will probably be marked by considerable predominance of the factors, which lower the level of economic activity over the factors which increase this activity; this will result in a decrease in the supply of labour from this source.

A forecast of manpower resources up to 1990 is illustrated in Table 5.5.

It follows from Table 5.5 that in 1971–1990 the increase in Poland's labour potential will probably amount to over 3.7 million persons, of which about 3.1 million will be in the first decade (1971–1980) and about 0.6 million in the second decade (1981–1990). The labour supply forecast by sex and by the factors which influence it for the period 1971–1990 is shown in Table 5.6.

The considerable rate of increase in labour supply in the 1980's as compared with the 1970's will necessitate the adoption of a differentiated strategy of economic growth. In the current decade (1971–1980) a considerable portion of the national income will continue to be formed as a result of increased employment in the national economy. In the next decade (1981–1990) the growth in national income will have to take place mainly owing to the intensive factors of growth (the efficiency of labour etc.) in the material sphere.

TABLE 5.5. LABOUR SUPPLY FORECAST UP TO 1990

Years	Labour Supply		
	Total	Males	Females
	in thousands		
1970	16.930	9,140	7,790
1975	18,720	10,020	8,700
1980	20,030	10,700	9,330
1985	20,400	10,990	9,410
1990	20,660	11,180	9,480
Increase in labour supply			
1971–1975	1,790	880	910
1976–1980	1,310	680	630
1981–1985	370	290	80
1986–1990	260	190	70
1971–1990	3,730	2,040	1,690

TABLE 5.6. LABOUR SUPPLY BALANCE SHEET FOR THE 1971–1990 PERIOD

Particulars	Total	Males	Females
	in thousands		
1. Net manpower resources as of 31 December, 1970	16,930	9,140	7,790
2. Increase in manpower resources from 1971–1990 (a–b+c) of which:	3,725	2,035	1,690
a) increase owing to changes in the age structure of the population over 15 years of age	3,945	2,505	1,440
b) decrease owing to lower activity rates	1.465	665	800
c) increase owing to higher activity rates	1,245	195	1,050
3. Projected manpower resources as of 31 December, 1990	20,655	11,175	9,480

EMPLOYMENT IN 1950–1973

For a number of years an overriding objective of employment policy was to provide conditions for a full utilization of manpower resources. The abundance of these resources had made possible an acceleration in the country's rate of socio-economic growth in conditions where there was a shortage of labour means, but at the same time this contributed to the general use of an extensive type of management of human resources. In the thirty year period under consideration, the rate of growth of employment was particularly high in the periods 1950–1955 and 1971–1975. In the first of these periods the increase in employment in the socialized sector amounted to almost 2.5 millions persons and was a result of the initiated process of industrialization of the country. The magnitude of the increase in employment in that period exceeded the growth in the supply of labour in urban areas; this initiated a considerable transfer of manpower from agricultural to nonagricultural occupations. The increase in the demand for labour, dynamic in that period, resulted in an exhaustion of the manpower reserves existing in the urban areas in the period of post-war economic reconstruction, and in limiting substantially agrarian over-employment which, in spite of the implementation of agricultural reform and of a settlement campaign in the western and northen territories, still existed. In the period under consideration, the average annual increase in employment in the socialized sector amounted to 412 thousand persons. The increase in employment preceded considerably the increase in the productive age population.

In the first post-war decade (1945–1955), and especially in the years 1950–1955, a policy of maximum employment was pursued in Poland. This was related to a low level of capital intensity of labour and a substantial supply of labour. Manpower was therefore a substitute for the means of labour.

The employment policy pursued in the 1956–1960 period was of a different nature. At that time the object of employment policy was to achieve a higher level of labour efficiency. The slowing down of the rate of growth in employment did not have negative repercussions in the labour market. The increase in the productive age population was relatively low (compare Table 5.1), employment in the socialized sector increasing in this period by only 605 thousand persons.

In the 1951–1960 period considerable changes took place in the number and the age and sex structure of those economically active in agriculture. This resulted, in spite of a considerable increase in employment in the non-agricultural sectors, in an increase in employment in the national economy of not many more than 1.5 million persons. This decade is characterized by a moderate rate of increase in the employment of women outside agriculture (amounting on the average to 3.7 per cent per annum). The share of women in this increase in the years 1951–1960 amounted to about 39 per cent.

During the 1961–1965 period the increase in employment in the national economy outside agriculture amounted to about 1,240 thousand persons, and was higher than the increase in the productive age population. The rate of increase in

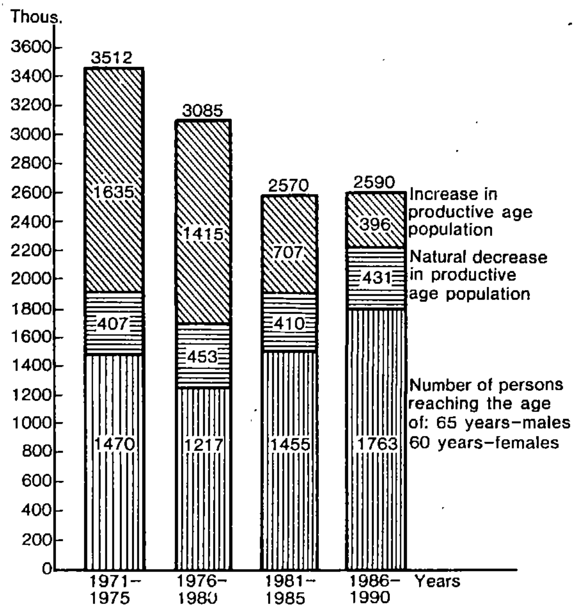


Chart. 5.3. Productive age population 1971–1990 (in thous.)

employment was faster in the non-productive sphere than in that of material production. The 1961–1965 period was marked by a high rate of growth in the employment of women in nonagricultural sectors; this amounted, on the average, to 4.9 per cent per annum, and the share of women in the increase in employment was about 54 per cent.

The 1966–1970 period marked the entering of employment by the first of the very numerous age groups of the post-war demographic boom. The increase in employment outside agriculture amounted to about 1.5 million persons.

In the period under consideration, the share of women in the increase in employment grew systematically, reaching on the average, about 60 per cent. This was a consequence of the process of intensive increase in the activity rates of women — the greatest in the thirty post-war years.

In the 1961–1970 period the average annual rate of increase in the efficiency of labour in material production was 4.3 per cent (6.7 per cent in 1951–1960), in spite of the fact that the capital intensity of direct labour increased by 3.4 per cent per annum in the 1961–1970 period, as compared with 2.8 per cent in the 1951–1960 period.

In the current five-year period (1971–1975) the increase in the supply of labour is the highest since the war (1.8 million persons). It is expected that the increase in

TABLE 5.7. ECONOMICALLY ACTIVE POPULATION IN THE NATIONAL ECONOMY IN 1950, 1960, 1970

Particulars	1950			1960			1970		
	Economically active		Percentage of females to the total	Economically active		Percentage of females to the total	Economically active		Percentage of females to the total
	Total	females		Total	females		Total	females	
	in thousands			in thousands			in thousands		
Total for the national economy of which:	12,404	5,546	44.7	13,907	6,155	44.3	16,944	7,795	46.0
Industry	2,328	689	29.6	3,238	969	29.9	4,675	1,665	35.6
Construction	519	71	13.7	791	80	10.1	1,125	163	14.5
Agriculture	7,016	3,781	53.9	6,546	3,617	55.2	6,421	3,569	55.6
Forestry	74	13	17.6	91	10	11.0	122	17	13.9
Transport and communications	468	63	13.5	673	101	15.0	960	195	20.3
Trade	644	279	43.3	738	421	57.0	1,040	714	68.6
Housing and communal facilities	113	37	32.7	230	77	33.5	393	141	35.9
Science, education, culture and arts	308	173	56.2	505	322	63.8	843	568	67.4
Health, social welfare, and physical culture	169	112	66.3	350	265	75.7	501	387	77.2
Remaining sectors	765	328	42.9	745	293	39.3	864	376	43.5

employment in the national economy (excluding individual farming) will amount to over 1.9 million persons; the share of women in this increase will amount to about 60 per cent. The dynamic growth of employment in this period and considerable improvements in the qualifications of those employed is one of the factors which is speeding up the rate of Poland's development, one of the highest in the world in the early 1970's. The implementation of the policy of full employment in the post-war period meant that even though in 1973 Poland's population amounted to 33.5 million, as against 35 million in 1939, over 17.5 million persons found employment. It is estimated that in 1939 there were 14.5 million economically active persons, the substantial majority of them in agriculture. Changes in the number of persons economically active in the national economy in 1950–1970 are illustrated in Table 5.7.

In consequence of the socio-economic development of the country, changes in the structure of employment were taking place; they were characterized by a decline in the share of employment in sector I (mining, agriculture and forestry) in favour of a parallel increase in the proportion of those employed in sector II (manufacturing and construction) and in sector III (services).

Changes in the employment structure by sectors determined on the basis of consecutive population censuses in 1950, 1960 and 1970 are illustrated bellow:

	1950	1960	1970
Total employment of which	100.0	100.0	100.0
Sector I (mining, agriculture and forestry)	63.3	52.9	43.0
Sector II (manufacturing and construction)	19.7	26.2	31.1
Sector III (services)	17.0	20.9	25.9

Changes in the economic structure of the economically active population (in the three sectors) indicate that in Poland the share of sector I, in spite of a gradual decline, is still high, similarly as the share of sector II.

In 1950–1973 the number of those economically active in agriculture declined in Poland to about 1.3 million. The redistribution of manpower resources took place in the form of translocations of labour potential from agriculture, which is characterized as a whole by socially lower labour efficiency, to sectors with higher social labour efficiency. This process contributed to speeding up the rate of growth of the national income and to changes in its structure. It is also worth noting that the labour force leaving agriculture in the first post-war years provided a partial substitute for the means of labour, because of the low level of the capital intensity of labour. Regardless of the positive consequences in the economic sphere, the outflow of labour from agriculture also produced social advantages.

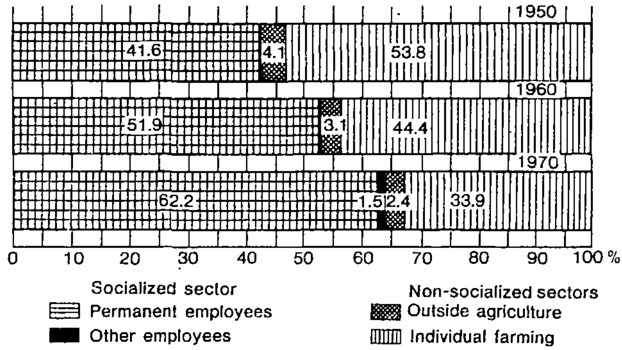


Chart. 5.4. Economically active population in the national economy by forms of employment, 1950–1970

The increase in the demand for labour in the nonagricultural sphere resulted in the elimination of agrarian overpopulation with in a relatively short period of time. Economic changes also took place in the structure of the economically active population, characterized by a decline in employment in sector I in favour of an increase in employment in the remaining sectors of the national economy. The migration from agriculture mainly concerned young people leaving work on the farm and farmers taking up additional employment outside agriculture.

It should be emphasized that the process of this outflow of labour resources from agriculture had its own specific characteristics. Its main feature was that it took place at the expense of the natural increase in the rural areas, affecting only slightly the number of those employed in agriculture. Hence the average annual decline in the number of those economically active in agriculture was relatively low (0.7 per cent in 1951–1960, 0.3 per cent in 1961–1970, and 2.4 per cent in 1971–1973). This goes to show that in Poland changes in this field were smaller than in other European countries.

Both changes in the absolute figures and the rate of these changes were different in the individual decades. In the first decade (1951–1960) the decline was 0.5 million persons, which means that the number economically active persons in agriculture in 1960 as compared with 1950 decreased by 7.1 per cent. In the second decade (1961–1970) the decline was only 0.2 million (2.8 per cent). The acceleration of the rate of decline in the number of those economically active in agriculture began in the early 70's. In 1971–1973 the number fell by 0.4 million. In the years 1950, 1960, 1970 and 1973 the share of the economically active population in the whole of Polish agriculture was 7.1 million, 6.6 million, 6.4 million and 6.0 million persons respectively.

The number and age structure of persons economically active in agriculture have been determined in the past primarily by: the demographic situation, the

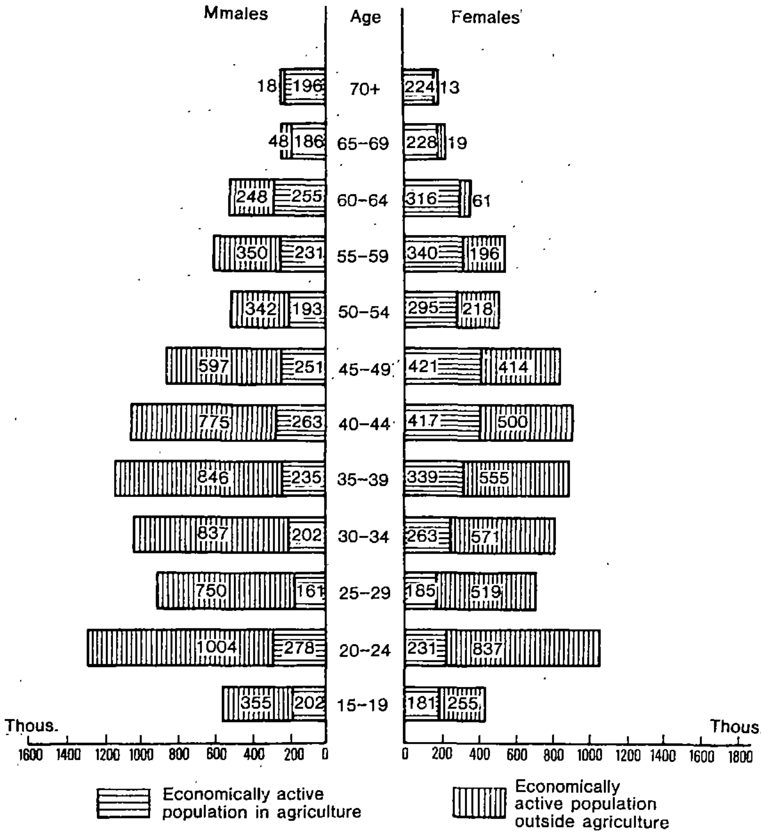


Chart. 5.5. Economically active population in agriculture and outside agriculture by age and sex in 1970

rising activity rates for women in urban areas and the ready labour market for non-agricultural employment.

It is estimated that in 1951–1960 about 1,300 thousand persons moved from agriculture to non-agricultural occupations; of these 730 thousand were men and 570 thousand women. These figures comprise the whole natural increase in manpower resources in agriculture (about 0.8 million persons) and the absolute decline in the number of economically active (about 0.5 million persons). It may be assumed then that, in consequence of secondary division of manpower resources between the agricultural and non-agricultural spheres, the number of persons who left agriculture for non-agricultural occupations amounted to over 65 per cent of the total increase in the economically active population outside agriculture (1,990 thousand persons).

In the 1961–1970 period the outflow of manpower resources from agriculture is also estimated at 1.3 million. This consists of the entire natural increase in manpower resources in agriculture (over 1.1 million) and the absolute decline in the number of those economically active in agriculture (about 0.2 million). As in the preceding decade, men predominated in the outflow of manpower resources from agriculture (over 0.7 million). But the share of manpower resources originating from agriculture in the total increase in employment outside agriculture was in 1961–1970 much lower (41 per cent) than in the preceding decade.

Altogether, in the 1950–1070 period the outflow of manpower resources from agriculture to non-agricultural occupations is estimated at 2.6 million persons, of which 1.4 million were men. In this period the number economically active outside agriculture increased from 5,370 thousand persons to about 10,520 thousand, i.e. by 5,150 thousand. The manpower resources of agricultural origin constituted about 50.5 per cent of the total increase in the number of those economically active outside agriculture. Along with quantitative changes in the manpower resources in agriculture, qualitative changes also took place from 1950–1970. These manifested themselves in the increasing ageing of the economically active population in agriculture and in the feminization of this occupation.

The quantitative and qualitative transformations in the level and age structure of the agricultural population have contributed largely to the sapping of the biological vitality of this social group. This will manifest itself in the years 1971–1990 by a weakening of the process of extended reproduction of manpower resources in agriculture.

In contrast to relatively slight changes in the total number economically active in agriculture, the transformations which took place in 1951–1973 in the age structure of the economically active agricultural population were quite considerable. This is illustrated in Table 5.8.

The number of persons economically active in agriculture in the juvenile age group (15–17 years) declined considerably. The share of the juvenile population in the total number fell from 7.7 per cent in 1950 to 2.4 per cent in 1973. Also, the proportion of the persons in the productive age range fell from 83 per cent in 1950 to 76.6 per cent in 1973. The number of economically active persons in the 18–44 year age group fell in 1950–1973 by 1,400 thousand and, correspondingly, the share of this group in the total number of economically active persons dropped from 55.6 per cent to 42.6 per cent. In this period the number of economically active persons in the senior productive age group increased by 80 thousand, and their share rose from 27.4 per cent in 1950 to 33.9 per cent in 1973.

The number of persons economically active in agriculture in the post-productive age group also increased substantially – by 590 thousand persons in the period under consideration; the share of this category increased from 9.3 per cent in 1950 to as much as 20.8 per cent in 1973.

The factor which had a decisive influence on the ageing of the Poland's economically active agricultural population was the outflow of young people from agriculture to non-agricultural occupations (Table 5.9).

TABLE 5.8. LEVEL AND CHANGES IN THE AGE STRUCTURE OF THE ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE FROM 1950–1973

Years	Economically active: 15 years of age and over	of which: juvenilse (15–17 years)	of which: in the productive age group (18–64 years for males 18–59 for females)	of which: in the occupationally mobile productive age group (18–44 years)	of which: in the occupationally immobile productive age group (45–59/64 years)	of which: in the post productive age group (65 and over for males, 60 and over for females)
	in thousands					
	Males and females					
1950	7,081	535	5,889	3,942	1,947	657
1960	6,599	242	5,465	3,164	2,301	892
1970	6,416	161	4,923	2,823	2,100	1,332
1973	5,963	149	4,568	2,543	2,025	1,246
	Males					
1950	3,246	250	2,743	1,743	1,000	253
1960	2,964	112	2,529	1,359	1,170	323
1970	2,849	83	2,284	1,274	1,010	482
1973	2,776	81	2,215	1,232	983	480
	Females					
1950	3,835	285	3,146	2,199	947	404
1960	3,635	130	2,936	1,805	1,131	569
1970	3,567	78	2,639	1,549	1,090	850
1973	3,187	68	2,353	1,311	1,042	766

Over 68 per cent of economically active men and as many as 85 per cent of economically active women leaving agriculture in 1961–1970 were in the up to 34 year age group. The occupational mobility in this category after the age of 34 years is not very high. The loss of young workers in agriculture was partly offset by an increase in the activity rates of the older population. While in 1950 for every, 1,000 men in the age group of over 60 years there were 845 economically active in agriculture, in 1960 there were 910, and in 1970 the corresponding figure was 939. In the early 70's process of decline began in the level of activity rates of older people in agriculture: (915 active per 1,000 males in 1973). The analogous figures for females aged 60 years and over were: 590, 688, 789 and 741, respectively.

TABLE 5.9. AGE-SEX STRUCTURE OF MANPOWER LEAVING AGRICULTURE 1961–1970

Age groups	Structure of net migration of manpower from agriculture by age in percentages	
	Males	Females
Total	100.0	100.0
15–19	–9.7	–14.5
20–24	–38.9	–43.3
25–29	–24.8	–23.4
30–34	–12.6	–2.2
35–39	–3.5	+1.8
40–44	–3.4	+0.7
45–49	–2.5	–0.5
50–54	–1.7	–1.0
55–59	–1.2	–2.5
60–64	–0.2	–4.1
65–69	+0.8	–4.8
70 and over	–2.3	–6.2

The national economy will have about 20.7 million economically active persons available in 1990 for the implementation of the socio-economic objectives assumed in the long-term forecasts. The long-term projection of manpower resources indicates that the population economically active in the national economy will possibly increase by about 3.0 million persons in the current decade (1971–1980) and 0.7 million persons in the next decade (1981–1990).

Non-agricultural manpower resources, as determined by the reproduction process, will be insufficient for the needs of the economy up to 1990. It is expected that up to that year the national economy will witness a process of a secondary distribution of manpower resources among socio-professional groups and sectors, and among sectors and branches. The translocation of agricultural labour reserves to socially more efficient employment sectors will be supplemented in 1976–1980 by a declining demographic inflow of manpower resources to non-agricultural sectors. It is estimated that in the 1971–1990 period the non-agricultural sectors of the economy will receive from agriculture about 2.3 million workers due to this secondary distribution of manpower resources. Toward the end of the 1980's the number of those economically active in agriculture will decline by about 3.8 – 4 million persons, while in non-agricultural occupations it will increase to about 16.6 – 16.8 million persons.

It is assumed that up to 1990 considerable transformations in the employment structure will take place. Special preference will be given to the services sector. The

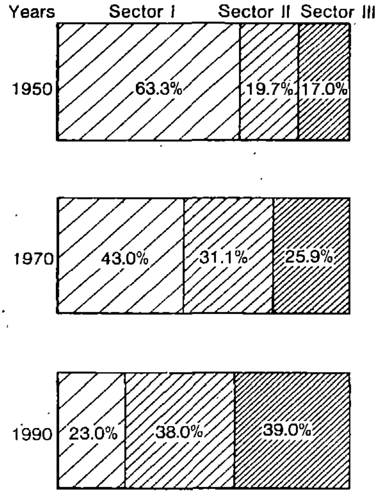


Chart. 5.6. Changes in the employment structure in 1950, 1970, 1990, by sectors

factors which are stimulating these changes are the growing activity rates among women and the shortening of working time. The importance of the services sector as a source of new jobs will increase especially at the agrarian structure's major transformation stage, with the introduction of increasingly modern labour equipment in the production sphere, owing to which savings will be achieved in direct labour outlays.

MANPOWER RESOURCES BY QUALIFICATIONS

One of the more important qualitative aspects of the reproduction of manpower is its qualifications structure. A very evident improvement in the qualifications structure of employed persons occurred in Poland over the 1958–1973 period[1]. In that period the total number of employees with education above elementary school level increased, on the average, by 7.6 per cent per annum, while the rate of increase in total employment in the socialized sector of the economy amounted to 3.7 per cent. This means that the employment of qualified workers increased at a rate which was twice as fast as that of the overall number of persons employed. This sort of outpacing was even more pronounced from 1964–1973.

The highest rate of increase was recorded in the group of employees with

[1] A census of qualified personnel was conducted in Poland for the first time in 1958.

secondary and higher education. In 1958 the share of those with higher than elementary education was 28.1 per cent of the total number of persons employed in the socialized sector; in 1964 this rose to about 32.9 per cent, in 1968 to 39.6 per cent and in 1973 to about 47.1 per cent. In 1980 over 65 per cent of employed persons will have diplomas from schools higher than the elementary level. The qualifications structure by level of education of the persons employed in the socialized sector depicts the nature of the changes in Poland's national economy. Employees with higher education in 1973 accounted for 5.8 per cent of the total number of persons employed in the socialized sector; those with secondary education accounted for 20.7 per cent, and those with elementary trade education — about 20.6 per cent.

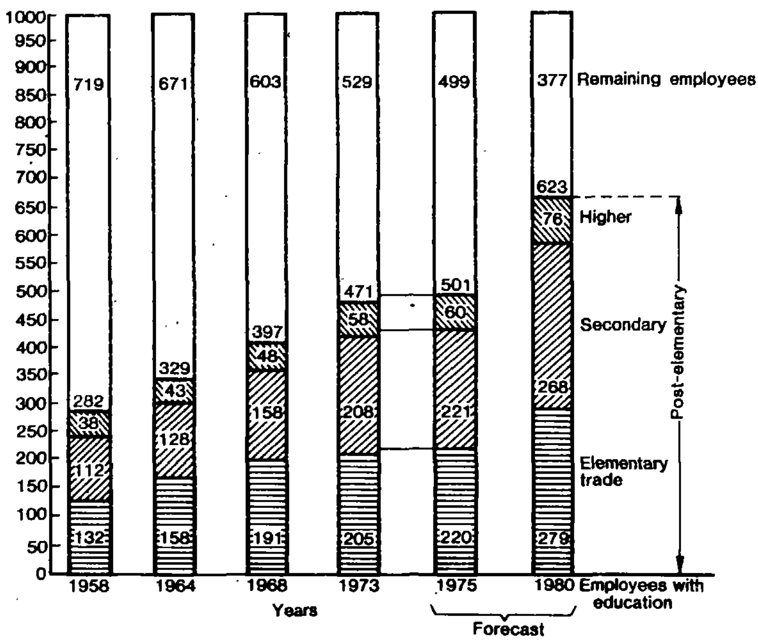


Chart. 5.7. Employment structure in the socialized sector by education, 1958–80, per 1,000 persons employed

An extremely essential factor in improving the employment structure by the level of education is undoubtedly the inflow to the production establishment of young people with an ever higher level of education. According to the 1973 Personnel Census, young people up to 24 years of age constituted 22.1 per cent of all those employed in the socialized sector. The corresponding figure for 1964 was 14.5 per cent and for 1968 — 17.1 per cent. In comparison with 1964, the number

of persons employed in the socialized sector in the age group up to 24 years increased in 1973 by 126 per cent, while total employment rose in that period by 48 per cent. It should be noted that the number of persons in the 25–49 year age group rose by 39 per cent, in the 50–59 year group – by 15.5 per cent and in the 60 and over group – by 38 per cent. An analysis of employed persons by age and level of education shows that the education structure is most favourable for employed persons aged up to 49 years. These are primarily the groups which gained their qualifications in the post-war period. In future, years the qualifications structure of employed persons will keep improving systematically, and the inflow of graduates from schools of various levels to production establishments will be conducive to this process.

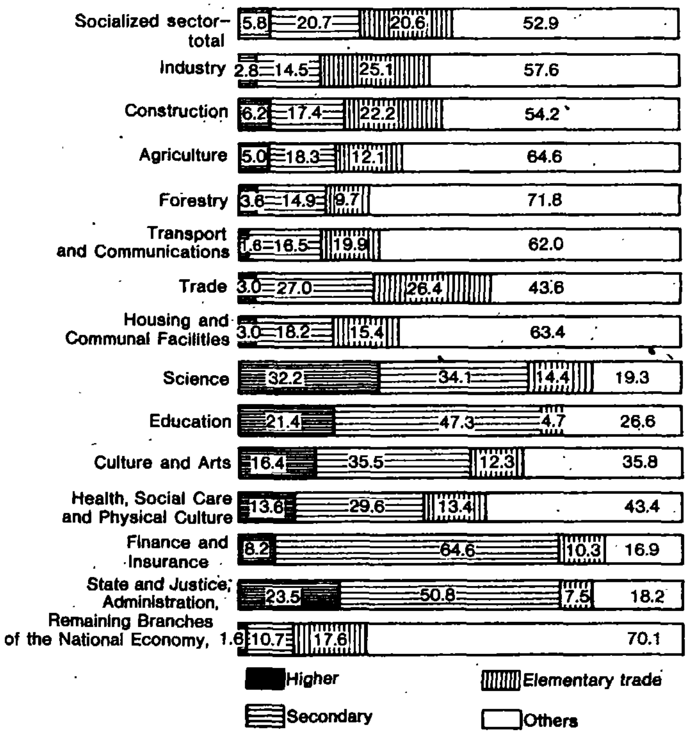


Chart. 5.8. Employees by level of education and by sectors of the national economy in 1973

In 1971–1975 over 2 million graduates who have completed elementary, secondary and university-level schools will begin work. In this period also about 530 thousand persons will receive diplomas from higher than elementary schools for working people. Their average level of education measured by the number of years spent at school will amount to 11.8 years, as compared with 7.5 years of

TABLE 5.10. EMPLOYEES IN THE SOCIALIZED SECTOR BY EDUCATION LEVEL 1958–1973

Particulars	Years					
	31 October 1958	31 January 1964	31 January 1968	31 October 1973	31 December 1975	31 December 1980
	in thousand persons					
Total employment in which:	6,351.0	7,137.0	8,528.0	10,559.0	11,734.0	13,014.0
employees with post elementary education – total	1,789.0	2,348.4	3,387.7	4,968.9	5,870.0	8,152.0
of which						
with higher education	239.0	310.4	405.4	611.2	700.0	1,002.0
with secondary education, including post-matriculation and incomplete higher education	714.3	912.0	1,350.3	2,190.9	2,647.0	3,527.0
with elementary trade education and incomplete secondary education	834.8	1,126.0	1,632.0	2,166.8	2,523.0	3,623.0
Particulars	1973/1958	1973/1964	1973/1968	1975/1973		1980/1975
Total employment	166.3	147.9	123.8	111.0		110.5
in which						
employees with post elementary education-total of which:	277.7	211.6	146.7	118.3		138.9
with higher education	254.8	196.9	150.8	114.5		143.1
with secondary education, including post-matriculation and incomplete higher education	306.7	240.2	162.3	120.8		133.2
with elementary trade education and incomplete secondary education	259.6	192.4	132.8	116.4		143.6

learning for those who retire and leave employment. In the 1976–1980 period the number of graduates from post-elementary day schools who enter employment will amount to 2.4 million (with the average education period lasting over 12 years), and about 530 thousand graduates will gain diplomas from schools for working people. Altogether then working personnel will increase from 1971–1980 by 4.1 million persons with diplomas from post-elementary schools. This will be the biggest growth in qualified personnel in Poland's 40 year post-war history (Table 5.10).

Somewhat less advantageous, in comparison with those employed in non-agricultural sectors of the economy, is the qualifications structure of those employed in agriculture. According to the data from the 1970 General Census only 70 out of every 1,000 persons economically active in agriculture had higher than elementary education. The problem of this unfavourable situation is more evident in the non-socialized sector than in the socialized sector. In 1970, for every 1,000 economically active persons there were about 300 persons with school qualifications in socialized agriculture, and only 45 persons in individual farming (Table 5.11).

TABLE 5.11. ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE YEARS OF AGE AND OVER BY EDUCATION LEVEL, 1970

Particulars	Agriculture – total		
	Small-scale farming and socialized sector	of which:	
		Small-scale farming	Socialized sector
	in thousand persons		
Economically active in agriculture in which:	6,421	5,754	667
with post elementary education of which	518	302	216
with higher education	28	3	25
with secondary education, including post-matriculation and incomplete higher education	177	74	103
with elementary trade education, including incomplete secondary education	113	225	88

The present qualifications structure of the economically active agricultural population has been shaped by a number of factors. Among the most important ones are: the low prestige of farming as an occupation; strong migratory tendencies, especially among the educated group in the agricultural population; insufficient –

as compared with the need – development of agricultural education, becoming steadily more pronounced owing to the failure to fulfil the plan of enrolment in agricultural schools; the fact that graduates from agricultural schools take up work in other occupation, etc. It is estimated that in 1946–1974 about 560 thousand graduates were trained in farming in day schools and schools for working people. Out of this number only some are now working in agriculture.

Parallel with changes in the employment structure by level of education, fairly significant structural changes took place in the intercensal periods within the particular occupation groups (Table 5.12).

From 1958 to 1973 the employment of persons with higher education increased rapidly in all occupation groups. The highest increase was recorded among employees with higher education in technical and agricultural occupations, the share of technical occupations in 1973 amounting to 35.5 per cent. The growth in employment was especially large as regards such technical experts as electronics engineers, whose number increased in 1968–1973 by 82 per cent, chemical engineers – by 63 per cent, electrical engineers – by 67 per cent, etc. The increase was also very rapid in the group of experts in the exact sciences (by 58 per cent in 1968–1973), as well as in agricultural occupations (by 48 per cent).

In line with the increase in personnel with university education, the employment of persons with secondary (mainly trade) education also rose rapidly. As was the case with employees with higher education, here the most rapid increase was recorded for the group with technical qualifications. In 1973 this group (in comparison with 1964) increased by 460 thousand, i.e. by 205 per cent (on the average by 11.8 per cent per annum). Almost every other employee with secondary education found a place in the technical group.

The results of the personnel censuses indicate a systematic increase in the percentage of women in the group of employees with higher education. While in 1958 women accounted for 17.9 per cent of the total population of employees with higher education, in the subsequent years this percentage grew as follows: 1964 – 32.6 per cent, 1968 – 33.9 per cent and 1973 – 38.7 per cent. In the 1958–1973 period the number of women with higher education employed in the socialized sector increased more than 2.5 times (on the average by 8.9 per cent). The most feminized groups with higher education are in: the health service – 62.3 per cent; the exact sciences – 58.8 per cent; the humanities field – 53.3 per cent. The least feminized is the technical occupations group, in which women account for 16.1 per cent.

From 1968 onwards a characteristic feature of the group of employees with secondary education has been the predominance of women. While in 1964 women with secondary education accounted for 49.6 per cent of all employees with this level of education, as early as 1968 the corresponding percentage increased to 51.6 per cent, and in 1973 rose to 55.0 per cent. These substantial structural changes took place under the influence of an extremely rapid increase in the

TABLE 5.12. EMPLOYEES WITH HIGHER AND SECONDARY TRADE EDUCATION BY OCCUPATION GROUPS IN 1958–1973[a]

Education level and occupation group	Years						
	1964	1968	1973	1958	1964	1968	1973
	Rate of growth (1958=100)			Employment structure by occupation groups			
Employees with higher education	129.4	169.0	254.7	100.0	100.0	100.0	100.0
of which:							
technical occupations	131.0	172.9	272.1	33.2	33.6	34.0	35.5
agricultural occupations	128.8	175.0	258.6	8.4	8.3	8.7	8.5
Experts in exact sciences	142.0	184.9	292.4	7.9	8.7	8.7	9.1
health service occupations	150.6	181.3	228.8	14.4	16.8	15.5	12.9
humanities occupations (together with law occupations)	119.6	161.4	244.4	19.2	16.9	17.5	17.6
economic occupations	117.7	153.8	228.6	12.7	11.5	11.5	11.4
Employees with secondary trade	136.4	219.9	369.1	100.0	100.0	100.0	100.0
of which:							
technical occupations	149.4	249.6	455.2	34.2	37.5	38.8	42.2
agricultural occupations	173.4	312.2	619.4	3.5	4.5	5.0	5.9
health service occupations	64.4	115.3	268.3	9.6[b]	4.5	5.0	7.0
economic occupations	150.0	283.1	511.7	17.8	19.5	22.9	24.7
Teachers and related	130.3	176.7	189.9	34.3	32.8	27.6	17.6

[a]By trade gained through training.
[b]Data for 1958 on the health service occupations group differ from those in the subsequent personnel censuses. In 1958 this group also included nurses trained outside specialized schools for nurses.

employment of women in this category. In 1973 the share of women with secondary education employed in the health service was at its highest, amounting to 94.6 per cent, and in teaching – 80 per cent. On the other hand, the lowest percentage of women with this level of education was in the technical occupations group, amounting to 24 per cent.

Chapter VI

POPULATION FORECASTS

GENERAL REMARKS

It was as recently as the interwar period that population forecasting methods were developed in Poland. The first population forecast concerning those 15 years of age and over was prepared and published in the Concise Statistical Yearbook, 1939. This forecast covered the year 1939 (a population estimate based on the 1931 Population Census and current records of natural population movements and migrations) and the years 1950.

It appears from the data published from this forecast that the Polish demographers of the time expected an increase in the population 15 years of age and over from 23,677 thousand in 1939 to 28,382 thousand in 1950. On the assumption that the number of young people up to 14 years of age would increase from 11.5 million in 1939 to at least about 12 million in 1950, the general population level in Poland in 1950 would have amounted to about 40 million persons. Because of the outbreak of World War II it is impossible to verify this prediction. The fact, however, that the actual population at the end of 1950 was 25,035 thousand persons proves beyong doubt the great loss in population potential which Poland suffered owing to the war.

The first Polish demographic projections (covering the population in all age groups) deal with the period after 1955.

From the point of view of changes in forecasting methods the following two stages should be distinguished:

– the first covering the period up to 1960;

– the second covering the period after 1960.

The characteristic features of forecasts made in the first period are:

1) death rates were assumed to be unchanged and consistent with life tables from 1948, 1952–1953, or 1955–1956; only changes in the death rate of infants and children up to 5 years of age were taken into consideration;

2) fertility was assumed to remain unchanged to the initial level.

Forecasts made towards the end of that period were based on the assumption of declining female fertility. The greatest decline in female fertility was assumed in the population forecast prepared by S. Wyrobisz. Its confrontation with the actual data indicates that these assumptions were in fact too timid.

The main reasons for the too optimistic forecasting assumptions of that period were:

– the lack of experience in forecasting work;

– the shortage of statistical material for the years preceding the starting point for forecasts;

– an improper interpretation of the population processes.

Population forecasts prepared since 1960 have been based on more elaborate assumptions. The following ones are characteristic:

1) declining death rates in all age groups; the target model for mortality had always been the most advantageous contemporary death order in Europe:

2) variable female fertility;

3) the multi-variant nature of assumptions.

In fact, the rate of decline in fertility was so great that forecasts made in 1963 and 1964 also turned out to be too optimistic and had to be revised.

The first post-migration forecast in that period was Poland's population projection (with division into urban and rural areas for 1967–1970 and 1975, 1980 and 1985) prepared in 1967 by the Central Statistical Office. In this projection the expected administrative changes were also taken into account.

The second post-migration forecast is the most recent one, now in force, prepared at the Central Statistical Office in 1973 for the period up to 1980, and in 1974 for the years 1981–2000.

The expected level of Poland's population according to different population projections prepared in the years 1955–1974 is illustrated in Table 6.1.

In addition to forecasting the level and structure of the population by sex, age and territorial division (towns, villages, and recently also voivodships), as shown in Table 6.1 the following demograpgic forecasts were also prepared in the 1971–1974 period:

1) a forecast of the number of marriages covering the 1971–1980 period;

2) a population forecast by marital status covering the 1971–1980 period;

3) a forecast of the number and structure of households covering the 1971–1980 period.

Population forecasts concerning the level and structure of the population provide a basis for the preparation of: manpower forecasts, agricultural population forecasts (only in the biological version for the time being), qualified personnel forecasts. Forecasts of this kind provide a basis for employment policy and are usually prepared by the Planning Commission of the Council of Ministers.

The initial data for preparing this newest and most up to date forecast of the population level and structure by sex and age were:

– an estimate of the population level and structure as of 31 December 1972, based on the final results of the 1970 National Population Census and on the current statistical data for 1971 and 1972. This estimate was prepared in accordance with the administrative division in force since 1 January 1973.

– assumptions concerning expected female fertility;

TABLE 6.1. POLAND'S POPULATION ACCORDING TO FORECASTS PREPARED 1955–1974 (AS OF DECEMBER 31)

Authors of the forecast	Year of preparation (publication of the forecast)	Projected population						
		1960	1970	1975	1980	1985	1990	2000
		in millions						
A. Chramiec, L. Kosiński[a]	1957	29.9	34.6		.	.	.	.
R. Zasępa, J. Z. Holzer[b]	1957	30.1	35.0	37.7	.	.	.	.
S. Wyrobisz[c]	1957	.	.	36.8	.	.	.	.
S. Wyrobisz[d]	1059	.	.	35.8	.	.	.	.
J. Z. Holzer[e]	1959	30.3	34.7	37.5	.	.	.	.
S. Waszak[f]	1960	30.1	34.4	36.8	.	.	.	.
K. Dzienio[g]	1960	29.9	34.2	36.5	.	.	.	.
J. Z. Holzer[h]	1963	x	32.9	34.8	37.0	39.2	.	46.5
K. Dzienio[i]	1964	x	33.4	35.5	37.6	39.6	.	.
GUS[k] (Central Statistical Office)	1967	x	33.0	34.7	36.5	38.2	.	.
J. Z. Holzer[l]	1968	x	32.9	34.7	36.5	38.0	39.5	41.8
Team of experts from the Planning Commission, Central Statistical Office and the Central School of Planning and Statistics[m]								
Variant: higher	1969	x	33.0	34.4	36.0	37.5	38.4	40.2
intermediate	1969	x	33.0	34.4	35.8	37.2	37.8	39.1

lower	1969	x	33.0	34.4	35.7	36.8	37.5	38.9
GUS[n] (Central Statistical Office)								
Variant: higher	1971	x	32.6	34.1	35.7	37.2	38.4	40.6
intermediate	1971	x	32.6	34.0	35.3	36.4	37.3	38.6
lower	1971	x	32.6	34.0	35.2	36.1	36.6	37.4
GUS[o] (Central Statistical Office)	1973	x	32.6	34.0	35.3	.	.	.
GUS[p] (Central Statistical Office)	1974	x	x	x	35.3	36.5	37.2	38.4

[a] „Przegląd Statystyczny" (Statistical Review) book 3–4, vol. 4, Warszawa 1957.
[b] „Ekonomika Pracy" (Economics of Labour) no 1/5, Warszawa 1957.
[c] „Myśl gospodarcza" (Economics Thought), no 8, Warszawa 1957.
[d] „Studia i rozważania o rozwoju gospodarczym Polski 1956–1965" (Studies and Considerations on Poland's Economic Development in 1956–1965), Warszawa 1959.
[e] „Prognoza demograficzna Polski do roku 1975" (Poland's Demographic Forecast up to 1975).
[f] „Ruch Prawniczy i Ekonomiczny" (Law and Economics Movement), book 2, Warszawa 1960.
[g] Forecast of Poland's Population Growth to 1975.
[h] Births and Deaths and Poland's Population Structure 1950–1970 (Warszawa 1964) and Forecast of Poland's Population Growth in 1960–1985, Planning Commission of the Council of Ministers, Warszawa 1964.
[k] Forecast of Poland's Population Growth for 1967–1970, 1975, 1980, 1985, GUS (Central Statistical Office), Warszawa 1967.
[l] A Versified version (on the basis of analysis of the demographic processes in the years 1963–1968) of the forecast published in: Births and Deaths and Poland's Population Structure 1950–1970 (Warszawa 1964).
[m] Variants of the forecast assume a systematic decline in mortality and a further steady decline, different in each forecast, in female fertility.
[n] This forecast based on the preliminary data of the National Population Census of 8 December 1970.
[o] The forecast in its post – migration version based on the final data of the National Population Census of 8 December 1970.
[p] The forecast in its post – migration version being an extension of the forecast prepared in 1973 (for the years 1971–1980).

– assumption concerning the expected death rates;

– the size of population migration as determined by the Planning Commission for the period up to 1980 and by the Central Statistical Office for the years 1981–2000.

The basic value of forecasting the level and structure of the population depends upon the accuracy of estimation of the future level of birth rates. This is the most variable factor, and exerts the strongest influence on the expected population level and its age structure. For the purpose of preparing a forecast of the population level and structure in Poland, with division into towns, villages and voivodships, reproduction forecasts have been prepared (in an analogous territorial classification) up to the year 2000. This forecast consists in determining the projected gross population reproduction rates and female fertility rates.

In accordance with the assumptions, it is expected that the gross reproduction coefficient will drop: in towns – from 0.832 in 1970 to 0.750 in 1976, remaining at that level up to the year 2000; in villages – from 1.389 in 1970 to 1.000 in 1985, also remaining at that level up to the year 2000. The projected female fertility rates in selected years in the forecast are illustrated in Table 6.2.

TABLE 6.2. PROJECTED FEMALE FERTILITY RATES[a]

Age Group	Urban areas			Rural areas		
	1970[b]	1980	1985–2000	1970[b]	1980	1985–2000
15–19	26	22	21	34	33	32
20–24	134	123	122	208	159	144
25–29	102	101	106	161	131	126
30–34	52	46	46	99	71	67
35–39	22	19	18	55	41	39
40–44	6	4	3	18	10	10
45–49	0	0	0	2	1	1

[a]Live births per 1,000 women in a given age group.
[b]Actual data.

Another indispensable element in designing the forecast of population level and structure to the year 2000 was the calculation of the probability of survival, i.e. the preparation of assumptions concerning projected death rates. The probability of survival (of the population x years of age to a certain year in the forecast) had been determined on the basis of hypothetical life tables prepared earlier for the years: 1971–1975, 1976–1980, 1981–1985, 1986–1990, 1991–1995, and 1996–2000.

These tables were prepared on the following assumptions:

1) that there will be a further systematic decline in death rates (up to the age of 80 years); in comparison with the period immediately after the war this will be

a relatively slight decline. This phenomenon is consistent with the negligible changes in the level of death rates now being observed on a European scale;

2) the rate of decline in death rates will be higher in villages than in towns and higher for males than for females; this will result in a reduction of the differences in death rates in towns and villages, as well as for males and females.

In accordance with the assumptions it is expected that the average life expectancy of an infant (e_o) will increase in the 1970–2000 period:

– for males in towns from 67.1 years to 71.3 years
– for females in towns from 73.4 years to 76.1 years
– for males in villages from 67.3 years to 72.1 years
– for females in villages from 73.0 years to 76.7 years.

Since demographic forecasts constitute a basis for planning socio-economic development, they have to provide a vision of the future approximating reality as much as possible. Because of this assumption it is necessary to make population projections in a post-migration version in which, in addition to births and deaths which affect population growth, population migration is also taken into consideration.

The magnitute of internal migration (from rural to urban areas) used for preparing the post-migration population projection up to the year 2000 has been determined after an analysis of the trends so far, the predicted manpower balance sheets up to 1990 and the possibility of population outflow from rural to urban areas.

According to the assumptions, it is expected that in the 1971–2000 period about 7.5 million persons will "move" from rural to urban areas. About 29.5 per cent of these population translocations will take place in 1971–1980, 36.8 per cent in 1981–1990 and 33.7 per cent in 1991–2000.

The post-migration population forecast for Poland to the year 2000 allows also for the assumed (negative) balance of external population migration. This factor, in comparison with internal migration from rural to urban areas, play, however, a negligible and marginal role in Poland's population growth.

THE RESULTS OF THE FORECAST

If the underlying assumptions of the forecast materialize, Poland's population will amount to 35,334.5 thousand in 1980, 37,172.4 thousand in 1990 and 38,368.6 thousand in the year 2000; in comparison with 1970 this is an increase of 17.5 per cent over a period of 30 years. The average annual rate of population increase during the next thirty years will amount to only 0.54 per cent. The lowest average annual population increase will occur in 1991–2000 (by 0.32 per cent) and the highest in 1971–1980 (by 0.79 per cent). This highest annual population increase will result from the fact that many female age groups from the so-called "post-war demographic boom" will in that period reach the age of maximum

TABLE 6.3. PROJECTED POPULATION NUMBER BY SEX AND AGE (AS OF 31 DECEMBER[a])

Age groups	1970[a]				2000			
	Total	Males	Females		Total	Males	Females	
	in thousands			per 100 males	in thousands			per 100 males
Total	32,657,7	15,861.5	16.796.2	105.9	38,368.6	18,972.9	19,395.7	102.2
0–4 years	2,538.0	1,297.2	1,240.8	95.7	2,405.6	1,233.0	1.172.6	95.1
5–9	2,733.7	1,399.1	1,334.6	95.4	2,403.1	1,230.4	1,172.7	95.3
10–14	3,390.5	1,730.9	1,659.6	95.9	2,545.2	1,302.0	1,243.2	95.5
15–19	3,478.5	1,772.3	1,706.2	96.3	2,769.9	1,415.9	1,354.0	95.6
20–24	2,958.3	1,499.3	1,459.0	97.3	2,856.7	1,459.1	1,397.6	95.8
25–29	1,888.5	948.9	939.6	99.0	2,715.4	1,385.6	1,329.8	96.0
30–34	2,155.5	1,076.1	1,079.4	100.3	2,464.0	1,253.4	1,210.6	96.6
35–39	2,256.9	1,127.0	1,129.9	100.3	2,619.6	1,332.4	1,287.2	96.6
40–44	2,256.0	1,097.4	1,158.6	105.6	3.284.7	1,656.0	1,628.7	98.4
45–49	1,986.0	914.6	1.071.4	117.1	3,288.5	1,655.0	1,633.5	98.7
50–54	1,280.7	587.2	693.5	118.1	2,724.0	1,356.1	1,367.9	100.9
55–59	1,500.4	673.5	826.9	122.8	1,662.2	813.2	849.0	104.4
60–64	1,498.3	675.2	823.1	121.9	1,792.5	856.7	935.8	109.2
65–69	1,161.2	497.0	664.2	133.6	1.706.1	792.0	914.1	115.4
70–74	804.7	310.5	494.2	159.2	1,453.3	628.0	825.3	131.4
75–79	439.0	154.1	284.9	184.9	968.6	369.6	599.0	162.1
80 years and over	331.5	101.2	230.3	227.6	709.2	234.5	474.7	202.4

[a]Actual data.

fertility. The slowdown in the rate of growth of the total population in the subsequent decades will be influenced by a decline in the number of women at the height of fertility and by the adopted assumption of declining female fertility in general.

The decline in the numerical predominance of women over men will be related to the higher rate of increase in the number of men than in the number of women. The number of men in 2000 will increase in comparison with 1970 by 19.6 per cent, while the number of women will grow only by 15.5 per cent. The higher rate of increase in the number of men will result from the assumption in the forecast that the death rates will decline much faster for them than for women.

Substantial changes will also take place in the sex structure in individual age groups. In 1970 a predominance of men was recorded in the age group from 0 to 29 years, while in the year 2000 this will be true for the age group from 0 to 49 years. Only in the older age groups will the number of women be greater than the number of men. Certain disproportions between the number of men and the number of women will also take place in the future; these may affect the number of marriages (in the sense of reducing this number), or may change the traditional relations between the ages at marriage for women and for men. In 1970 the number of women in the 20–24 year age group was greater by over 500 thousand than the number of men in the 25–29 year age group, and by the year 2000 a difference of the same order will apply to women in the 50–54 year age group and to men in the 55–59 year age group, i.e. the age groups which exert a rather negligible influence on the number of marriages.

In the whole period up to the year 2000 dynamic changes will take place in the population structure by age. Most generally speaking these changes characterize the advancing process of the ageing of Polish society. Changes in the structure of the pre-productive population (0–17 years), the productive population (18–64 years for men and 18–59 years for women) and the post-productive population (65 years and over for men and 60 years and over for women) are illustrated in Table 6.4.

The population in the pre-productive age group will decline from 10,774.6 thousand persons in 1970 to 8,991.8 thousand persons in 2000, i.e. by 16.5 per cent. The proportion of the population in the 0–17 year age group will drop from 33.0 per cent in 1970 to 23.4 per cent of the total population in the year 2000.

The population in the productive age group will increase during the 30 years from 1970 to the year 2000 by 5,280 thousand persons, i.e. by 28.8 per cent. The highest increase in the population in the productive age group will occur, however, in the current decade i.e. up to 1980 (by 16.6 per cent); this is related to the large number of people born during the so-called demographic boom reaching this stage. From a demographic point of view this is an advantageous phenomenon consisting in the rejuvenation of manpower resources (expressed in an increase in the proportion of young population, 18–39 years of age, in the total population in the productive age group); from 1980 on the disadvantageous process of a gradual ageing of the population in the productive age group will develop.

TABLE 6.4. PROJECTED POPULATION BY AGE (AS OF 31 DECEMBER)[a]

Age Group	1970[a]	1980	1990	2000
	In thousands			
Total	32,657.7	35,334.5	37,172.4	38,368.6
0–17 years	10,774.6	9,763.5	9,912.7	8,991.8
18–59/64 years	18,323.7	21,372.8	22,401.8	23,603.8
60/65 years and over	3,559.4	4,198.2	4,857.9	5,773.0
	Increase or decrease in thousands			
Total	x	2,676.8	1,837.9	1,196.2
0–17 years	x	–1,011.1	149.2	–920.9
18–59/64 years	x	3,049.1	1,029.0	1,202.0
60/65 years and over	x	638.8	659.7	915.1
	In percentages			
Total	100.0	100.0	100.0	100.0
0–17 years	33.0	27.6	26.7	23.4
18–59/64 years	56.1	60.5	60.3	61.5
60/65 years and over	10.9	11.9	13.0	15.1

[a]Actual data.

The results of the forecast confirm the more and more frequently repeated thesis on the ageing of Polish society. The years 1971–2000 will be a period of a systematic increase in the population of post-productive age. While in 1970 this population amounted to 3,559 thousands persons, in 2000 it will reach 5,770 thousand persons. In comparison with 1970 this is an increase by 62.2 per cent. The proportion of the population in this age group will increase from 10.9 per cent in 1970 to 15.1 per cent in 2000. It should be added that in spite of a considerable increase the population in the post-productive age group, the dependency ratio of the population of non-productive age on the population of productive age will decline. This ratio will drop from 78 persons of non-productive age per 100 persons of productive age in 1970 to 63 persons in the year 2000. The decline is this ratio, along with the increase in the post-productive age population mentioned above, results from an assumed considerable decline in the population of pre-productive age, with a simultaneous considerable increase in productive age population.

The entire following thirty year period will be characterized by a further considerable increase in urban population and a slight further decline in rural population. The urban population will increase from 17,088.0 thousand persons in 1970 to 27,771.9 thousand in the year 2000, and its share in the total population of the country will increase from 52.3 per cent in 1970 to 72.4 per cent in the year 2000. A decisive factor in the increase in urban population will be migration from villages to towns rather than the natural increase. While in 1966–1970 the natural

TABLE 6.5. PROJECTED POPULATION BY VOIVODSHIPS (AS OF 31 DECEMBER)[a]

Particulars	1970[a]	1980	1990	2000	
	in thousands				1970=100,0
Poland	32,657.7	35,334.5	37,172.4	38,368,6	117.5
urban areas	17,088.0	20,686.4	24,540.6	27,771.9	162.5
rural areas	15,569.7	14,648.1	12,694.8	10,596.7	68.1
Capital city of Warsaw	1,316	1,539	1,732	1,866	141.8
City of Kraków	589	736	849	941	159.8
City of Łódź	763	841	902	931	122.0
City of Poznań	472	563	659	739	156.6
City of Wrocław	526	632	730	810	154.0
Białystok Voivodship	1,176	1,227	1,258	1,285	109.3
Bydgoszcz „	1,914	2,095	2,222	2,323	121.4
Gdańsk „	1,469	1,692	1,885	2,032	138.3
Katowice „	3,701	4,096	4,449	4,676	126.3
Kielce „	1,890	1,942	1,941	1,933	102.3
Koszalin „	796	901	993	1,061	133.3
Kraków „	2,183	2,269	2,296	2,331	106.8
Lublin „	1,925	2,000	2,008	1,980	102.9
Łódź „	1,669	1,686	1,632	1,562	93.6
Olsztyn „	980	1,050	1,114	1,172	119.6
Opole „	1,059	1,154	1,258	1,346	127.1
Poznań „	2,193	2,308	2,343	2,362	107.7
Rzeszów „	1,758	1,878	1,900	1,899	108.0
Szczecin „	899	1,035	1,144	1,215	135.2
Warszawa „	2,518	2,590	2,600	2,576	102.3
Wrocław „	1,977	2,111	2,186	2,206	111.6
Zielona Góra „	885	990	1,071	1,123	126.9

[a]Actual data.

increase accounted for 44.5 per cent of the increase in urban population and the increase cause by migration amounted to 55.5 per cent, these ratios will, respectively, amount to 38.8 per cent and 61.2 per cent in 1971–1980, 28.7 per cent and 71.3 per cent in 1981–1990, and 22.2 per cent and 77.8 per cent in 1991–2000.

The rural population will decline from 15,569.7 thousand persons in 1970 to 10,596.7 thousand in the year 2000, which means that the decline over the whole current thirty year period will amount to 31.9. per cent.

If the assumptions in this forecast materialize it is expected (Table 6.5) that the rate of population growth will be highest in the big cities which are voivodship seats and in the following voivodships: Gdańsk, Koszalin, Szczecin, Opole, Zielona Góra and Katowice, i.e. the voivodships to which migration inflow from others is high, or voivodships with a "young" population structure. The rate of growth will be lowest

in the following voivodships: Łódź (a decline in the population by 6.4 per cent), Kielce, Warszawa, Lublin, Kraków, Poznań, Rzeszów and Białystok, i.e. the voivodships with an "old" population structure, characterized also by a steady outflow of population caused by migration to other voivodships.

FORECASTS OF POPULATION BY MARITAL STATUS

Poland's population forecast by sex, age and marital status was prepared for the years 1971–1980 on the following basis:

– the results of the post-migration population forecast by sex and age to the year 1980;

– structure indicators which illustrate the proportion of the population in the particular marital status categories by sex and age and compared to the total population of a given sex and age group.

According to the most recent population forecast it is expected that the population 15 years of age and over will increase in 1980 in comparison with 1970 by 3,161 thousand persons, of which 1,648 thousand will be men and 1,513 thousand women. The relative increase in this population group will amount then to 13.2 per cent, 14.4 per cent for men and 12.0 per cent for women. The rapid rate of growth in the population years of age and over in the 1971–1980 period is related to the fact that all those born in the period of the demographic boom will in this decade reach this age.

Changes in the population structure by marital status in 1970 and 1980 are illustrated in Table 6.6.

TABLE 6.6. PROJECTED POPULATION 15 YEARS OF AGE AND OVER BY MARITAL STATUS (AS OF 31 DECEMBER)

Particulars	1970[a]	1980		1970[a]	1980
	in thousands		1970=100,0	in percentages	
Men	11,430.2	13,077.8	114.4	100.0	100.0
single	3,575.1	3,606.3	100.9	31.3	27.6
married	7,465.8	8,962.5	120.0	65.3	68.5
widowed	243.8	327.4	134.3	2.1	2.5
divorced and separated	145.5	181.6	124.8	1.3	1.4
Women	12,560.7	14,074.1	112.0	100.0	100.0
single	3,054.0	2,836.9	92.9	24.3	20.2
married	7,547.4	9,075.0	120.2	60.1	64.5
widowed	1,686.2	1,830.8	108.6	13.4	13.0
divorced and separated	273.1	331.4	121.3	2.2	2.3

[a]Actual data.

Among men the rate of increase will be highest for widowers (by 34.3 per cent in comparison with 1970) followed by those divorced and separated (by 24.8 per cent during the current decade). The increase in the number of married men in 1980 as compared with 1970 will amount to about 1,500 thousand persons, which is 20 per cent over the level in 1970. The number of single men will remain more or less at the 1970 level.

It is expected that changes in women's marital status will be somewhat different from those for men. The rate of increase will be most rapid for divorced and separated women (by 21.3 per cent in 1980 in comparison with 1970), followed by married women (an increase by 20 per cent). It is assumed that the number of widows will increase only slightly (by 8.6 per cent), while the number of single women will decline by about 7 per cent.

This sort of marital status composition of the population in the coming years will result from changes in the population structure by sex and age. The relatively greater number of young men will mean a reduction of the percentage of women with no chance of getting married; a relatively greater number of men of mature age and of older men will cause a decline in the number of widows. Advantageous changes in the population structure by sex will enable women to remarry and this, in turn, will lead to an increase in the percentage of married population in comparison with the total population of the country.

FORECAST OF THE NUMBER AND STRUCTURE OF HOUSEHOLDS

Forecasting the number and structure of households is especially important, because this period a basis for evaluating housing needs. The problem of evaluating long-term housing needs is in turn very important in Poland because of the shortage of flats, their largely inadequate quality, and also because of a relatively high rate of increase in housing needs, especially in the 1970–1980 period.

Work on methods of household forecasting started quite recently, i.e. after World War II. The basis for projecting the future number of households is provided by numerical material in the general population censuses and by current statistics supplemented, if needed, by estimates. Individual studies differ however, with respect to the choice of demographic characteristic taken into consideration and the extent of the correlation between them. Subject to investigation are usually such characteristic as: age, sex, marital status, and, more and more frequently, the family or household structure, and sometimes its composition. The development of forecasting methods depended to a large extent upon the amount and degree of detail of reliable statistical data.

First studies on household forecast deign and estimates were conducted in Poland by D. Kozińska from the Housing Construction Institute. The basis for her "number of households" projection was provided by the demographic data on the

population 20 years of age and over. In the method adopted by her the basic division was into the main age groups, i.e. young people and adults. She also used the division of the adult population into the married and unmarried groups. This method enabled her to determine the total number of households as the sum of separately estimated number of one-person and multiple-person households.

On the basis of the results of the 1970 Population Census, it was possible to embark for the first time on household forecasting work in the way recommended by international organizations and as used in some countries, namely on the basis of socalled "headship rates". On the basis of this method a forecast of the number and structure of households to 1980 was prepared in two variants.

The basis for this study was provided by:

– projection of population by marital status up to 1980;

– headship rates;

for variant I (minimum) – constant for the whole projected period at the 1970 level;

for variant II – variable in every calendar year up to 1980.

Variable rates were worked out on the general assumption of a higher frequency of household formation than that observed in 1970. These rates are higher for:

1) married couples in practically all age groups;

2) widowed, divorced and separated women; i.e. those population groups which usually set up households.

The guiding principle in raising the frequency of household formation by married couples was that a married couple should set up a separate household and have an independent home, both for the sake of enabling the two people to get along well, and in order to make it easier for them to start a family and bring up children in an appropriate environment. The rate of growth of housing construction both at present and as projected for coming years, should be conducive to attaining this objective.

The higher frequency of household formation by women (widows, divorced and separated women) is due to: 1) expected improvement: in the housing situation; 2) rising disability and retirement pensions; 3) a systematic increase in the proportion of older women with their own source of income, or more generally speaking in the expected improvements in living conditions.

According to the data from the 1970 National Population Census the number of households as of 8 December 1970 was 9,376 thousand, and was higher by 1,123 thousand than in 1960 (an increase by 13.6 per cent). It is expected that their number will increase further from 1971–1980 to 10,586 thousand, according to variant I (i.e. by 12.9 per cent), or to 11,120 thousand according to variant II (i.e. by 18,6 per cent).

There is a significant difference in the rate of growth in the number of households in urban and rural areas. During 1960–1970 the number of households increased in urban areas by 23.8 per cent and in rural areas by 2.3 per cent. It is

expected that in 1980, as compared with 1970, their number will further increase in urban areas by 31.1 per cent (according to minimum variant I by 25.7 per cent) and in rural areas by 1.7 per cent (according to variant I – a decline of 4.4 per cent). This kind of trend is related to mass population migrations from rural to urban areas. It is well known that about 50 per cent of all persons migrating from villages to towns are those in the 18–29 year age group, i.e. those who establish most the households frequently.

For the needs of housing construction and in order to determine the demand for particular durable consumer goods, the structure of households by the number of persons of which they consist is also important.

The number and structure of households projected up to 1980 in two variants, for both urban and rural areas, are illustrated in Table 6.7.

TABLE 6.7. PROJECTED HOUSEHOLD NUMBER AND STRUCTURE

Particulars	Households by number of persons					
	total in thousands	1	2	3	4	5 and more
		in percentages				
		Total				
1970[a]	9,376	16.1	18.8	20.2	21.0	23.9
1980 – Variant I	10,586	16.8	19.5	21.8	21.8	20.1
– Variant II	11,120	17.2	21.9	24.9	19.8	16.2
	urban areas					
1970[a]	5,390	20.0	20.0	22.2	22.0	15.8
1980 – Variant I	6,775	19.9	20.6	23.8	23.0	12.7
– Variant II	7.068	20.5	22.8	27.1	29.4	10.2
	rural areas					
1970[a]	3,986	10.8	17.2	17.6	19.5	34.9
1980 – Variant I	3,811	11.3	17.5	18.2	19.6	33.4
– Variant II	4,052	11.4	20.4	20.9	20.5	26.8

[a]Data from the 1970 National Population Census.

The structure of households differs significantly in towns and in villages. In 1970 the distribution of the number of the particular types of households was basically uniform in the towns (with a slight predominance of 3- and 4-person households). In the rural areas, on the other hand, there were decidedly bigger households (with five or more persons). This difference stemms from the rural tradition of having

many children and forming so-called multi-generation households (grandparents, children, grandchildren); this in turn is related to the specific conditions in operating individual farm and to their production functions. In connection with the steady increase in the rural areas and in the proportion of population deriving its income from non-agricultural sources, it should be expected that the life style in the rural areas will become similar to that in the urban areas. In this connection it can also be expected that the size of households in the rural areas will become similar to those in the urban areas.

The change in the structure of households, assumed in the forecast (especially in its variant II) and expressed via the increase in the percentage of small households (mainly 3-person ones in towns) and the corresponding decline in the percentage of big households, is due to the declining share of children and young people up to 20 years of age in the total population, both urban and rural.

Chapter VII

THE ECONOMIC AND SOCIAL IMPLICATIONS OF DEMOGRAPHIC TRENDS AND POPULATION POLICY

THE DEMOGRAPHIC TRANSITION

Within the limits imposed by the inadequacy of the available data, the statistically established pattern of demographic change in the Polish territories reveals a process of transition through several distinct stages, of which the first two seem almost completed, and the third evidently advanced.

The first stage, which began roughly in the 1870's and lasted until World War II resembles basically the common patterns of change experienced at that time throughout the European continent, although with more pronounced traces of economic stagnation in the Polish territories. This was brought about by the advent of industrial revolution, hampered by political dependence upon the occupying powers (prior to 1918). In the interwar period the process of change was slow because of the generally sluggish rate of socio-economic development.

The decrease in fertility was almost in proportion to the decline in mortality (around 50 per cent throughout the years 1870–1939). The gross reproduction rate fell from 3.06 to 1.56, the reduction of overall mortality bringing down the level of the crude death rate from 28 to nearly 14 promille by the outbreak of World War I, with the improvement in infant mortality lagging behind. In spite of the subsequent fall in the annual rate of natural increase by 1/3, its ultimate effect had no bearing on the conditions of the country's economic development, and there was no slow-down in the formation of the deepening pool of idle labour reserves.

The expansion of the market economy pushed into the background the traditional pattern of self-employment in what was a predominantly agricultural an handicraft economy, without creating and adequate demand for hired labour. The imbalance between the slow rate of industrial progress and the accelerated pace of formation of idle employee workforce resulted in chronic unemployment and heavy emigration to more vigorously developing regions in Europe and America. The net balance of migration abroad reduced the actual population increase by more than 20 per cent during the years 1870–1913, and by not less than 10 per cent during the 1924–1939 period. In absolute numbers the irrecoverable loss of Polish population due to labour emigration amounted to about 4.5 million. In consequence, the demographic processes peculiar to the first phase of demographic

evolution were slowed down. Considering the comparative position held by Poland on the European map of "demographic transition", the initial discrepancy in the reproductive levels widened in the years 1890–1938. The crude birth rate in Poland exceeded the average European level by 1/5 at the beginning of this period and by 1/4 at its end while the relative levels of mortality did not change.

The pronounced change in reproduction attitudes, along with the evident failure of the national economy to absorb the available human resources cannot be regarded as the only reason for a marked slow down in the rate of population growth throughout the first phase of demographic transition. It is necessary also to bear in mind the heavy losses inflicted by the two world wars. The immediate losses among military personnel and civilian population combined with the fall in the birth rate and mass resettlement (excluding changes of citizenship following territorial changes in state boundaries) amounted, according to a rough estimate, to about 4 million for the years 1914–18 and to at least twice as many as the result of World War II. Allowing for the partial recovery owing to the compensatory post-war birth increase, and the repatriation of war refugees, the magnitute of the irretrievable losses brought about by the war can be assessed by comparing the potential population increase, which under peacetime conditions should have amounted in both these decades (1914–1923 and 1940–1949) to 8.5 million, with the actual "deficit" in population growth over those 20 years in the range of 4 million. The resultant demographic depts in the shape of the age pyramid have exerted their disturbing influence on the rythm of entering and leaving the reproductive and productive age since the early 1960's and will continue to do so until the end of the present century.

During the recovery of the economy form the destruction caused by the war, accompanied by demographic compensation and population resettlement and followed by the first accomplishments of socialist development strategy such as a land reform, industrialization and full employment, the demographic evolution entered, after a temporary slow down, its second phase.

In comparison with the preceding phase of population transition, this was a much shorter one and it brought about at a considerably faster pace a significantly stronger decline in replacement rates. The gross reproduction rate fell from a peak of 1.91 in 1951 to 1.06 in 1969, while the crude death rate declined from 12.4 promille in 1951 to 7.3 promille in 1966. In both cases the decline in the value of these parameters was about 40 per cent. There was also a sharp decline in the infant mortality rate which has continued to the present day; it fell from 117.6 per thousand to 28.6 per thousand in 1972. Allowing for changes resulting from the ageing of the population, the level of natural increase dropped throughout this period from a peak of 19.5 promille in 1952 to 8.2 promille in 1969, the lowest level recorded so far.

The complex and many-sided influence of socialist industralization, which can perhaps be regarded as one of the factors in a growing tendency towards small

families, also reduced substantially the number of deaths caused by contagious diseases and stopped the misuse of the country's human resources and labour emigration abroad. Therefore, inspite of the considerable drop in the generation replacement rate, the net population increase during the second phase of demographic transition in Poland did not fall below the levels recorded for the peace-time periods of the preceding phase, with the "demographic gain" rising from 1/3 before World War I to nearly 60 per cent for the years 1950–1970.

The parallel decrease in both the fertility and mortality levels did not last long, and there are now signs of changes in the above trend due to three reasons.

TABLE 7.1. DEMOGRAPHIC TRANSITION IN THE POLISH TERRITORIES

Period	Net population increase	Births	Deaths	Net migration	Rate of final demographic gain (1: 2)
	(per 1,000 inhabitants of the mid-period population)				
	(1)	(2)	(3)	(4)	
1870–1913	128	405	–241	–36	32%
1924–1939	124	292	–154	–14	42%
1950–1970	128	217	–83	–6	59%
1970–2000[a]	54	147	–93	0	37%

[a]According to the latest population projection accepted for official use.

Ageing of the population advancing at a comparatively moderate pace throughout the first phase of demographic transition, with the ratio of population 65 years and over rising from 3.6 per cent in 1900 to 5.0 per cent in 1950, has accelerated considerably during the last 20 years and rose to 8.0 per cent in 1970. The effects of the changing age composition on the crude death rate were first recorded in 1966, and from that time, despite a continuous reduction in the infant mortality rate, the long lasting declining trend in overall mortality was stopped. To reverse the growth of the crude death rate due to demographic ageing, that is to keep its annual level from rising above 8 promille, based on the assumption of a further decline in the age-sex specific death rates, it would be necessary to increase the 1970 net reproduction level from 1.0 to at least 1.5 and hold it stable for the next 30–40 years; this seems unlikely for the time being.

Apart from the unavoidable rise in the level of general mortality due to old age, there is the much more serious question of the simultaneous slackening in the downward trend of the age-sex specific death rates, particularly among the adult population. So far the progress in general welfare and improvements in medical care have been sufficient to bring contagious diseases under effective control and reduce their influence on the death rate. It seems, however, that the impact of this gain

combined with the effects of the continuous transformation of the human environment came in the mid-1960's to the point of being partly offset by the rising death rate due to cardio vascular diseases, cancer and accidents. The progressive change in the composition of the determinants of general mortality shows that the male urban population is especially affected by this factor. With the average life expectancy at birth for females (72.8) surpassing even in 1965 male life expectancy by 6 years, the disparities in general mortality by sex must have risen even more in the following years. It is worth noting in this respect that while the age-specific death rates for the female population were either still falling or held constant (1966–1970), the mortality rates for all strata of the male population aged 35 years and over increased. It is becoming more and more obvious that without deliberate, built-in checks in the complex sphere of our environment, the continuation of the traditional type of progress in the health services is unlikely to ensure automatically an increase in life expectancy.

Another factor which contributes to the gradual departure from the prevailing *pattern of demographic evolution is the moderate increase in the fertility level* recorded in the last 5 years, especially in the rural areas. This rise is attributed to the greater fertility of mothers who are now entering the highest reproduction age and who were born during the post-war "baby boom". Taking into consideration the statistically insignificant magnitude of the recorded changes and the uncertain prospects for their spontaneous further development – it is felt that the introduction of a proper social policy is advisable in order to extend control over the birth rate component of future demographic growth.

In passing from the second to the third phase of demographic evolution the continuation of spontaneous development may result in the population growth in Poland falling well below the replacement level, with the prospect of demographic stagnation around the year 2030. And with this hypothetical forecast in mind, very serious thought is now being given to the formulation of a new growth strategy in the long-term plan, so as to eliminate the potential conflict between the various development roles played by the population and the chances of its natural reproduction.

THE POPULATION AND ECONOMIC GROWTH 1950–1970

The upgrading of the role of the population factor among the other growth factors is primarily the result of socialist development strategy during the past 30 years, which was aimed at a full utilization of initially abundant human resources. And this strategy will be continued in the future, under the pressure of the approaching scarcity of manpower.

To overcome the consequences of the economic stagnation of the inter-war period and the losses suffered during the war and to ensure further growth, socialist

industrialization had to be extensive and rapid. The average annual compound rate of increase in the gross national income was about 7.6 per cent in the first decade of fullscale industrialization (1950–60), dropped to the level of 6.2 per cent throughout the 1960's, and rose again during the three years of a more dynamic economic policy (1971–73) to the level of 8.9 per cent surpassing the rate of growth of the national income in the world by roughly 2 percentage points.

This high rate of overall economic growth was achieved by influencing simultaneously the three contributing factors: the structural transformation of the economy aimed at developing more efficient industries, full utilization of available manpower resources, the earmarking of a high proportion of domestic savings for investment in machinery and equipment.

Manufacturing and construction have become the leading sectors in the national economy, their joint share rising from 37 per cent in 1950 to 58 per cent in 1970 as compared with the agricultural sector's decline from 40 per cent to 13 per cent during the same period. The per capita value of mining and manufacturing production combined increased roughly eight times in those 20 years; the corresponding figure for the manufacturing industries alone was even higher, the share of which, increased from 89 to 94 per cent. Particularly rapid was the rise in the share of the investment goods branches in total industrial production, increasing from 47 per cent in 1949 to 66 per cent in 1970.

The funds for rapid industrialization, in which preference was given to the development of heavy industry which practically did not exist before had to be obtained mainly from domestic sources (high rate of accumulation). From 1950 to 1970 the average annual rate of increase in gross national income per capita was about 5.3 per cent. The comparable rate of average annual increase in real incomes was about 4.5 per cent, in investments about 6.9 per cent, and in investments in the production of capital goods about 8.9 per cent.

Such a development strategy contributed to the rapid growth in employment opportunities and in population activity rates. As regards labour demand, the priority given to the expansion of the investment and basic metal industries helped to create a strong multiplier effect on the volume of employment. This tendency became even more pronounced owing to the negligible proportion of imported labour-saving technology and the general shortage of well-trained managerial staff, which would have raised labour productivity at factory level.

The unique structure of farming, in which small, family-operated private farms predominate, prevented the superfluous labour in agriculture from unlimited migration to urban areas.

Since during the past industrialization phase the inflow of fresh manpower resources resulting from population growth was both slow and unevenly distributed in space and time, a considerable proportion of industrial demand for labour was met by the activation of local manpower reserves, primarily women at the productive age in urban areas.

The average annual rate of population growth, 15–59 years of age (in percentages)

1945–55	1955–60	1960–70	1970–80	1980–2000
1.60	0.65	1.14	1.75	0.39

On supply side the rising level of education of the female population, the increasing prevalence of career-oriented attitudes among women and the desire to improve family well-being contributed to raising the workforce participation rates. In consequence, the overall level of social activity comprising both the number of persons employed and engaged in full-time education rose in the 1950–1970 period from 74 per cent to 81 per cent of the total adult population ages 15 years and over, with a particulary marked progress in two age groups: youth aged 15–24 years (from 75 to 89 per cent) and females aged 25–59 years (from 61 to 77 per cent).

The decrease in the share of agricultural employment in the total work force (by 18 percentage points) was offset by the rise in industrial employment by 10 percentage points and in services by 8 points. Keeping in mind the evident deterioration in the sex-age composition of agricultural labour force (with the amount of workers aged 45 years and over rising from 36 to 54 per cent in the past 20 years), a further outflow of farm labour surplus will depend in the future on the gradual elimination of difference in the level of technology and in social conditions of employment in agriculture and in non-agricultural sectors.

The significant change in the qualification structure resulted in an eight-fold increase in the number of those with secondary and higher education, as compared to the pre-war level. For every 100 persons employed outside agriculture, there were in 1971 5 persons with university degres, 22 persons with secondary general and vocational education, and 18 persons with junior vocational training. Regular elementary schooling covered at that time all children aged 7–14 years; 68 per cent of those aged 15–18 years attended secondary schools and 8.5 per cent aged 19–22 years were studying at institutions of higher learning.

The rapid and profound changes in social and settlement structure affected the traditional pattern of the "demographic roles" of the urban and rural populations. In the last 10 years the majority of females at the reproductive age has been living in urban areas (56 per cent in 1970). From among all the children born in 1971 to the mothers at the highest fertility age (20–29 years) – 66 per cent were born to economically active women (52 per cent in industry and services and 14 in agriculture), and only 34 per cent to those performing household duties. With the average number of children ever born to all married women aged 20–49 years in 1970 estimated by a sample enquiry at the level of 2.63 (and varying from 2.22 for those just entering the reproductive age to 2.91 for the terminal group) the lowest figures were recorded for women with higher (1.70) and secondary education (2.01), as well as for wives of white collar workers (2.00) and the highest for

women with incomplete elementary education (3.40) or those classified as self-employed (3.33).

The changes in the pattern of fertility resulting from transformations of the social structure indicate that there are two relevant factors. First, there are differences in the availability of information on birth control. In the future this factor will contribute to lowering the birth rate. Secondly, there is an uneven distribution of collision between responsibilities of parenthood and earning a living relative to the educational background and economic status of mothers who bring up children. Efforts should be made to weaken the effect of this factor in the future.

The population is thus becoming a key factor in the future socio-economic development strategy. And since the future rate of population reproduction may well fall below the present level, the challenge that confronts the strategy of future development is rational control over the conditions in which various roles are performed sinultaneously by different population strata throughout their complete active life cycle.

THE GENERAL FRAMEWORK OF DEVELOPMENT STRATEGY, 1970–1990

The fundamental task of the long-term plan is to radically improve the general well-being of all population strata. The most ambitious goals are being set to expand the supply of those goods and services whose shortage was particulary acute in the past, i.e.: housing, public and communal transport, hospitals and nursing homes. The number of flats in newly built houses in the 20 years after 1970 will amount to 7.3 millions, that is 2.5 times more than in the years 1950–70. The object is to provide every household with its own flat by 1990. Because of the importance of services especially those which reduce the burden of household duties and increase the amount of free time which can be used for recreational activities – the services sector is to raise the proportion of its labour force by 1990 to 40 per cent, with manufacturing rising to 39 per cent and primary sectors declining to 21 per cent of the total active work force. By the end of the long-term plan all children aged 4–6 years will be admitted to kindergartens, while all groups of the adult population, irrespective of their source of income, will be entitled to social benefits from the health insurance and pension schemes.

Among the factors of economic development the main emphasis is now being laid on the intensive use of capital and labour, with a rapid expansion of foreign trade. The sharp decline in the available labour resources as compared to the growing demand for manpower in the services and education sectors necessitates a radical improvement in labour productivity, particularly in the manufacturing industries and construction.

The need for the modernization and reconstruction of both industrial and

agricultural productive capacities as well as the necessity of protecting the environment will encourage the import of new technology and raise the share of the R+D sector in the national income.

The succesful implementation of this development strategy may ewentually exert a significant influence upon many vital links in the interaction between the demographic and socio-economic variables.

The profound technological reconstruction and modernization of the national economy would not only facilitate the flow of manpower from more capital intensive to less capital intensive industries (manufacturing – services), but would also help to weaken the global dependence of future economic growth upon past demographic behaviour. Although the anticipated change would not eliminate completely the risk of short-term deficits in the labour marked in terms of occupational and spatial distribution, the disturbing effect thus created would obviously cause less harm than under the conditions of low labour productivity.

In raising the educational standard of the adult population well above the matriculation level, the development programme will weaken additionally the importance of demographic growth for economic development, increasing occupational mobility within a longer time interval of active life. On the other hand, the raising of the cultural level of the society may result in lowering the birth rate by making the small family pattern more common. It is possible to consider the effects of the expected progress in the population's material well-being in three respects. The improvement of health and hygienic conditions as well as the resultant further decrease in mortality, particulary infant mortality, would not cause any significant changes in attitudes to the birth parity thus directly contributing to population growth. By satisfying the delayed demand for housing, kindergartens and household equipment, not only family life and comfort will be enriched but also the elements now limiting the population reproduction will be weakened, especially in urban areas where the supply of services and child-care facilities was inadequate. It is also quite possible that at the same time other population groups, specifically in the rural areas, might be inclined to use their higher earning capacity for satisfying their needs and aspirations competitive with the parenthood. In following certain development strategies which are complementary to raising the material and cultural well-being of society, the long-term plan would indirectly influence the population variables and their importance for further growth. Although it is difficult to evaluate the "demographic effect" of these changes, it is expected that it will be favourable and will contribute to greater longevity. To strenghten the potential demographic effects of the development strategy described above, consideration is being given to designing a deliberate social policy aimed at improving the conditions of family and individual life.

POPULATION POLICY WITHIN THE GENERAL FRAMEWORK OF DEVELOPMENT STRATEGY

In evaluating major changes in population growth and socioeconomic development, it is now easier to perceive the fundamental significance of the chain reactions caused by industrialization and followed by a profound modification of the social and cultural pattern of life. It is necessary however, two supplement this statement with two remarks. In the first place, demographic implications were seldom correctly interpreted, much less seriously considered, in early stages of designing and implementing a general development strategy. In this situation the processes of demographic transition were set in motion as by-products of development programmes. Seen in this context, population policy measures appear to have been mostly of secondary importance, irrespective of whether they served the purpose of protecting family well-being or were meant to tone down disharmony between the demographic and economic development of the country. While the experience of other countries may be similar in this field the specific conditions existing in Poland should be kept in mind. First, the fact that economic growth was based from the very beginning on nationalization and on an egalitarian model of income distribution can be regarded as a reason for the stronger sensitivity of reproductive behaviour to economic factors. The process of demographic transition was in these conditions much faster than was the case in the market-oriented economies of western Europe. On the other hand, the specific nature of land reform in Poland, with the predominance of small family farms, has retarded to a considerable extent the pace of decrease in fertility in the rural areas as compared with the experience of other European socialist countries. Thus the negative influence of the slowdown in population growth, on manpower renewal, was in Poland relatively weaker and had less important consequences than in the neighbouring countries.

In the middle of 1974 the government appointed the Population Commission as an advisory and coordinating body for population research and coordination. The Commission reached essential agreement as to the general premises of social policy oriented towards better harmony between future development and population growth.

Improvements in the material and cultural conditions of the family, which is the basic component of human society, are clearly the most important element of a long term social policy. The growing importance of family well-being in more advanced stages of economic development stems from two complementary factors. There is, on the one hand, the question of improving the living conditions more effectively owing to the achievements in socio-economic development so far. But there is also a need for a policy which would help the family to preserve its vital role and to protect it against rapid macro-social changes. On economic grounds, such a strategy would aim at improving the material living conditions, revising price policy and designing a system of benefits and allowances which would protect

families with children. In more general terms, this may call also for a gradual readjustment of employment, education and social insurance policies so as to reduce conflicts between one's own aspirations in life and the reproduction function, experienced in the past phase of demographic transition.

While it is logical to assume that a social policy of this kind, would ewentually strengthen the demographic development strategy for the years 1975–1990, it is much less certain when and how fast the present-downward trend of population growth could be reversed. In the presently considered programmes of Poland's, demographic development, the net replacement rate should reach the level of 1.1–1.2 and remain at that level for a long period of time in order to create the most advantageous demographic conditions for general development. Considering the present differences in reproductive attitudes in various social groups it would be necessary for the young generations of married couples in the urban areas to adopt new family patterns which would then gradually spread throughout the entire society. The general principles of social policy relevant to population growth may be classified in two categories of action programmes. The first category of the general family welfare system includes measures based on social, income distribution and legislative grounds, along with the protection of family rights and interests. Although adopted at earlier stages of economic and social development, and considered valid to date, these might occasionally call for minor readjustments to fit in with ongoing changes on the macro-social level. Marital law in Poland recognizes as legitimate monogamous matrimony, which may be dissolved through divorce (if not harmful to the interests of the children). Both spouses have equal rights and responsibilities, with special emphasis on the protection of the child and wife as "weaker" partners in the family unit. The new Family Code provides for raising the age of marital consent for men to 21 years, and warrants as equal the claims of each spouse to the combined household property accumulated throughout the duration of the marriage, independent of the respective income participation of husband and wife. The wife and children are entitled to special allowances in the case of the temporary absence of the income provider or if the marriage is dissolved by divorce. As from 1975 alimony payments, whenever the husband is missing or unwilling to cooperate, are transferred directly to the recipient familly by the national Alimony Fund.

The present system of social benefits supplemented with Acts of 14 January 1972 and 17 December 1974 in Poland includes:

– 16–18 weeks paid maternity leave
– 36 weeks of unpaid leave for a mother with small children (up to the age of two years), with the right to free medical assistance and the right to resume work in the last job
– 60 days of paid leave per annum for taking care of a sick child
– protection against dismissal from a job during pregnancy and maternity leave, with the option of transfer to suitable employment during pregnancy
– monthly family allowances, rising in proportion to the number of children (up to the fourth child)

– health insurance benefits amounting to 100 per cent of the net remuneration during the sick leave
– special monthly allowances for crippled children.

It is expected that the above system will be further developed and the following measures are considered:
– a further development of the Family Planning Association network especially in pre-marital and family consulting,
– the upgrading of counciliatory procedures in the divorce legislature,
– the development of day nurseres and kindergartens to meet the requirements of the child population in the 3–6 year age group,
– an increase in the amount of education grants available at post-matriculation level,
– an increase in the supply of consumer goods and services which facilitate household work,
– a gradual transfer of financial responsibility for invalid or retarded children from the family to the state.

The second group of social policy measures is aimed at reducing the cost of child upbringing for less well to do and culturally less mature families. The now comtemplated amendments to this system are aimed at protecting families with many children. In perfecting the mechanism of special assistance for low-income multi-child families, the government recognises the obligation to provide an equal start for the younger generation, irrespective of the position of their parents. The same policy includes the popularization of knowledge and awareness of parental responsibilities. The succesful implementation of the above programmes, serving the purpose of social justice and welfare in the vital area of family formation and child upbringing, will help in preparing the ground for the introduction of a policy stimulating population growth, should the need arise.